Benchmarks Online

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Feature Articles

Campus Computing News

Dr. Leatherbury discusses the Campus-wide Oracle database license and the Microsoft Campus Agreement this month. The new Helpdesk hours are also highlighted on this page.

Important Academic Mainframe News

Read this article to find out about the OS/MVS maintenance schedule and the fate of VM/CMS for the fall.

Secure Communications to be Required for ACS UNIX Hosts

As of September 1, 2001, access via telnet and ftp to the ACS UNIX hosts sol, jove, and terra will no longer be possible. After September 1, you must use an SSH-compatible client for access. Click on the title for more details.

BulkMail gets an Update

Development is continuing on the Student Bulk E-mail system to enhance its functionality and security. Read all about it ...

The Force is on the way ...

Read this article for an update on the Smartforce computer-based training situation.

Benchmarks *Online*

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Mac OS X is Here!

Apple Computer recently began shipping copies of Mac OS X. Dr. Philip Baczewski shares his impressions and experience with this "revolutionary" operating system in this article.

PostgreSQL -- What is it?

The PostgreSQL client/server database is the most advanced open-source database available today. Read this article and find out why.

Today's Cartoon

Click on the title above for an information age laugh.

Don't forget to check out our monthly columns. This month's topics:

- **RSS Matters** -- "Ready for Rainy days: Backing up files on tapes for mainframe users" On July 12, 2001, the MVS batch system will undergo a system upgrade that may last up to 2 days. If you are a mainframe user who submits job to the MVS batch system on a regular basis, this article provides ways to back up your files on tape cartridges.
- **SAS Corner** -- "SAS Speaks XML" What does the development of the Web's latest language have to do with SAS programming? Read this article and find out.
- **The Network Connection** -- "A modest proposal" Baczewski does Swift with an information age twist.
- **List of the Month** -- "ECOPLEX" Last month the "List of the Month" was Pollen.com. Continuing on that theme, this month's "list" comes from right here at UNT.
- **WWW@UNT.EDU** -- "Exciting New Features in ColdFusion 5" We are living in an exciting time when technology is

changing our lives. To keep up with this pace, we are given more and more products that dub themselves Rapid Application Development. Few actually achieve this status. Then there's ColdFusion 5 . . .

- **Short Courses** -- Spring Academic Computing Services (ACS) short courses are in full swing for the summer!

- **IRC News** -- Minutes of the Information Resources Council are printed here when they are available.

- **Staff Activities** -- New employees, employees that have resigned, employee recognitions, performances, and other staff changes are included in this article.

Research and Statistical Support
University of North Texas

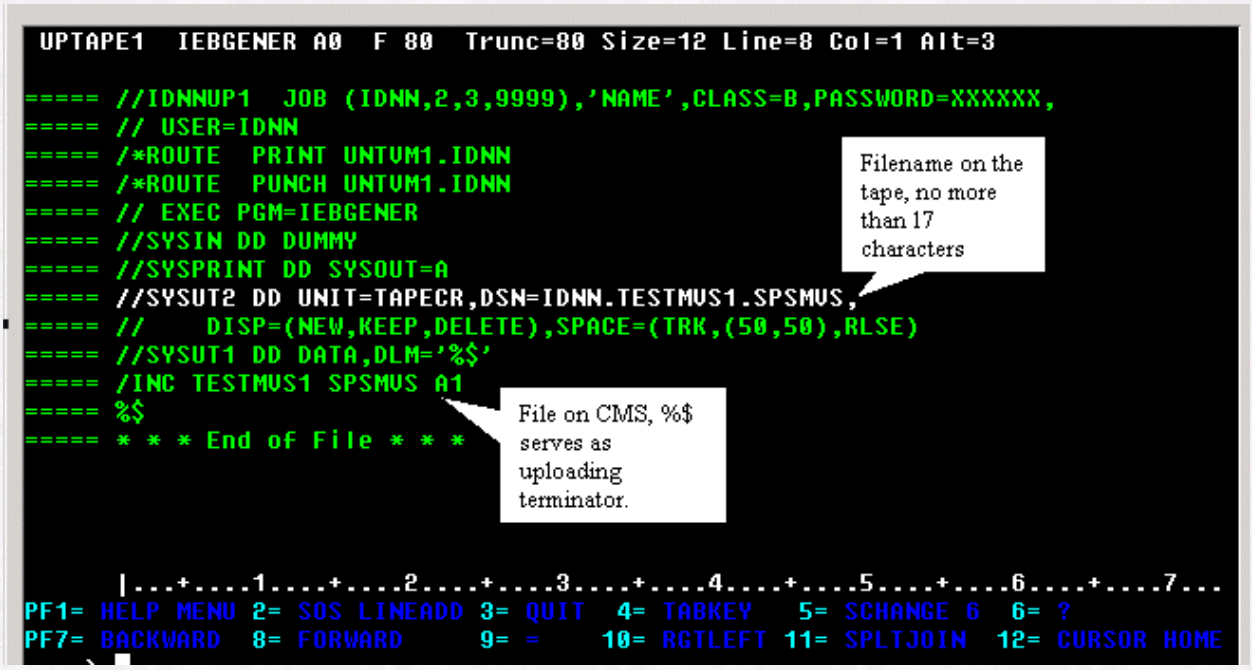
RSS Matters

Ready for Rainy days: Backing up files on tapes for mainframe users

By Dr.Karl Ho, Research and Statistical Support Services Manager

On July 12, 2001, the MVS batch system will undergo a system upgrade that may last up to 2 days. If you are a mainframe user who submits job to the MVS batch system on a regular basis, this article provides ways to back up your files on tape cartridges.

1. To save a series of files from CMS or MVS to a tape, first write a file to a scratch tape. Once a tape is assigned to your first file, you can use that same tape for storing other files. To start from "scratch", use the IEBGENER program to save the file:



This IEBGENER program uploads a CMS program file to a tape. Note that the file name on the tape is confined to no more 17 characters and the VOL=SER= parameter was intentionally left out. Click here to get a text copy of the program.

You can also copy an MVS file to the tape by modifying the SYSUT1 field. Again, for the first copy, the VOL=SER= parameter has to be left out.

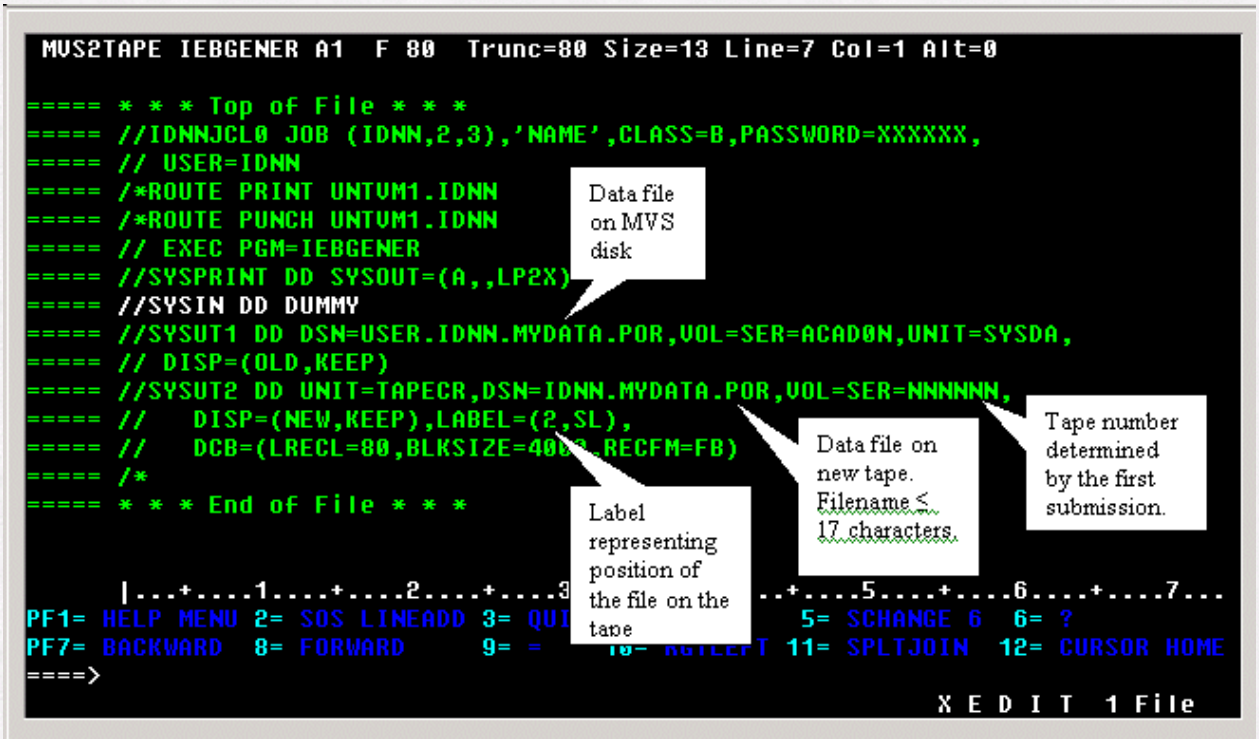
2. Once a file is successfully copied to a scratch tape, the IEBGENER output from Tape Management System (TMS) will return an assigned tape number as illustrated in the following partial output:

```
                    J E S 2  J O B  L O G  --  S Y S T E M  A C A D  --  N O D E  A
C A D M V S

.
.
.
ICH70001I AC08     LAST ACCESS AT 11:57:15 ON FRIDAY, JUNE 15, 2001
IEF236I ALLOC. FOR AC08UP1
IEF237I DMY  ALLOCATED TO SYSIN
IEF237I JES2 ALLOCATED TO SYSPRINT
IEF237I 0E8B ALLOCATED TO SYSUT2
IEF237I JES2 ALLOCATED TO SYSUT1
IEF142I AC08UP1 - STEP WAS EXECUTED - COND CODE 0000
IEF285I   AC08.AC08UP1.JOB00538.D0000102.?             SYSOUT
IEF285I   USER.AC08.TESTMVS1.SPSMVS                    KEPT
IEF285I   VOL SER NOS= 300267.
IEF285I   AC08.AC08UP1.JOB00538.D0000101.?             SYSIN
IEF373I STEP/         /START 2001166.1419
IEF374I STEP/         /STOP  2001166.1420 CPU    0MIN 00.04SEC SRB    0MIN 00.00SEC
VIRT    76K SYS   272K EXT       4K SYS    9392K
IEF375I  JOB/AC08UP1 /START 2001166.1419
IEF376I  JOB/AC08UP1 /STOP  2001166.1420 CPU    0MIN 00.04SEC SRB    0MIN 00.00SEC
DATA SET UTILITY - GENERATE
              PAGE 0001
IEB352I WARNING : OUTPUT RECFM/LRECL/BLKSIZE COPIED FROM INPUT

PROCESSING ENDED AT EOD
```

Using this assigned tape, you can copy other files from your MVS disk or CMS disk to the tape. Remember to label the files according to the order of uploading. The following IEBGENER program illustrates this process of copying an MVS SPSS portable file to the pre-assigned tape NNNNNN (e.g. 300267). Click here to get a text copy of the sample program.



Be reminded the VOL=SER= parameters refer to the physical location of the file. In the SYSUT1 line, it refers to the source file on the ACAD0N disk, where N should be from 0,2, 3 (e.g. ACAD03). If you are not sure if the copying is successful, use the following tapemap program to check the files on the tape:

```
//IDNNTMAP JOB (IDNN,2,3),'NAME',CLASS=B,PASSWORD=XXXXXXX,USER=IDNN
 /*ROUTE PRINT UNTVM1.IDNN
 /*ROUTE PUNCH UNTVM1.IDNN
 //TAPEMAP PROC VOL=IDUNNO
```

```
//MAPPIT EXEC PGM=TAPEMAPS
//SYSUT1 DD LABEL=(1,BLP,EXPDT=98000),
// VOL=SER=&VOL,DISP=SHR,UNIT=TAPECR
//STEPLIB DD DSN=SYS2.A000.MVS.UTILS.LOAD,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
// PEND
//MAP EXEC TAPEMAP,VOL=NNNNNN
//* Change nnnnnn to the TMS Volume Number
```

Research and Statistical Support
University of North Texas

SAS Corner

By Dr.Karl Ho, Research and Statistical Support Services Manager

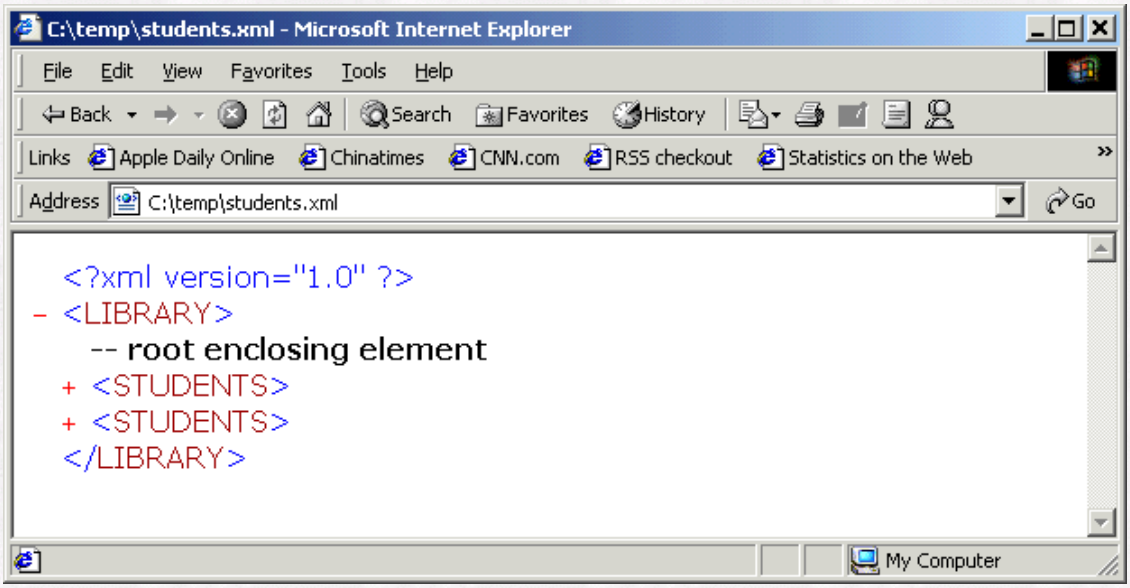
SAS Speaks XML

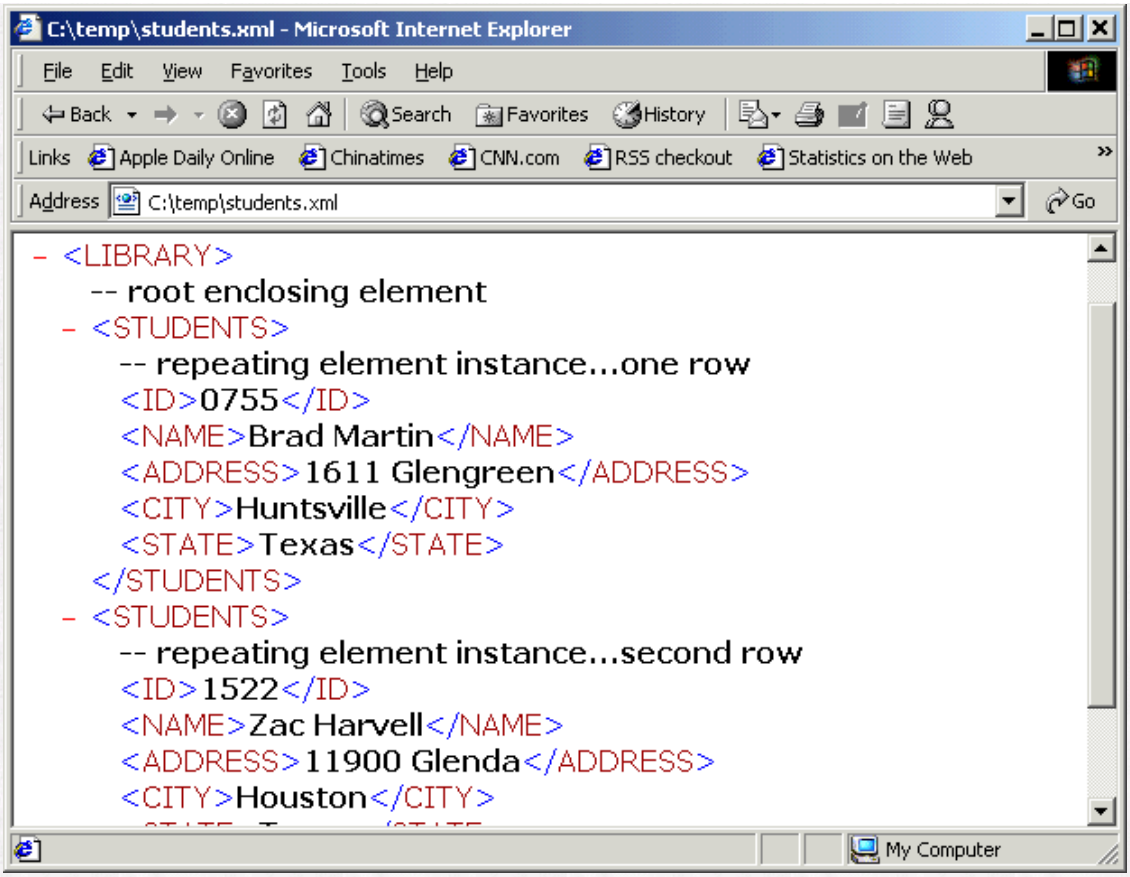
What does the development of the Web's latest language have to do with SAS programming? That's right, SAS finally speaks XML. This article briefly discusses how SAS taps into this latest trend on the Web and advances to the next generation as a data delivery system.

The Extensible Markup Language (XML) is described as the next generation *ASCII* that will be omnipresent in Web and local applications. It provides a "framework for delivering structured data ... within and between applications and organizations"*.

Tracing its roots, XML is an offspring from the more general Standard Generalized Markup Language first developed in the 1980s. HTML, which is from the same root, can be called a cousin of XML. Unlike the former, which is primarily concerned with presenting information on the Web, XML is loaded with a mission of "carrying" the data in a way that multiple applications on different platforms can recognize.

XML can take advantage of the hierarchical or nested nature of data contents and deliver them in a flexible, tagged format. Data contents, for example, can be arranged or nested in a hierarchy of tags according to the data structure (library, data sets, columns/fields, etc.). The following is an example of a data set in XML format. While HTML is limited to predefined formatting tags, XML programmers can customize tags used to describe data:





Data contents are organized under one root level of LIBRARY, while STUDENTS records cases each of which constitutes variables including ID, NAME, ADDRESS, CITY and STATE. In fact, the hierarchy can go into further levels, say, under ADDRESS that consists of more variables like street, streetnumber, etc.

Beginning with 8.0, several methods of generating and importing XML documents have been incorporated into SAS. Programmers can now toy with XML documents by using SAS Data Step, Output Delivery System (ODS) or the XML libname engine.

SAS Data Step

One can simply convert a SAS data set into XML using SAS syntax. The following sample program implements this simple task:

```
filename outxml "c:\temp\simplecustomer.xml";
Data _null_;
 file outxml;
 set sampdata.cust10 NOBS=Lst;
 length gender $6. marital_status $11.;
 %let tab=" ";
 addr1=htmlencode(addr1);
 addr2=htmlencode(addr2);
 if sex=0 then gender='Female';
else gender='Male';
if married=0 then marital_status="Not Married";
else marital_status="Married";
if _n_=1 then do;
put '<?xml version="1.0" ?>';
put '<customer-data>';
end;
put '<contact-information>';
put &tab'<cust-id>' custnum '</cust-id>';
put &tab'<name>' name '</name>';
put &tab'<gender>' gender '</gender>';
put &tab'<age>' age '</age>';
put &tab'<income>' income '</income>';
put &tab'<status>' marital_status '</status>';
put &tab &tab '<address>';
put &tab &tab '<street ORDER="1">'
addr1 '</street>';
put &tab &tab '<street ORDER="2">'
addr2 '</street>';
```

```
put &tab &tab '<city>' city '</city>';
put &tab &tab '<state>' state '</state>';
put &tab &tab '<zip-code>' zip '</zip-code>';
put &tab &tab '<region>' region '</region>';
put &tab &tab '</address>';
put '</contact-information>';
if _n_ = lst then do;
put '</customer-data>';
end;
run;
```

Click here to view the output XML file. The result file may not be appealing to the eyes but it renders the data or output dataset in a self-contained/self-explanatory fashion that appeals to other applications. Since the organization and data structure are embedded, it is very flexible for incrementing or updating new data and transporting data to other applications or environments. From here the metaphor goes: XML to data applications is like ASCII to word processors.

Output Delivery System (ODS)

ODS allows you to generate more "rich" XML files with metadata ("data about data" or information of the data in terms of how they can be used). The following example illustrates the XML output of two GLM procedures. The resulting data can be transported for browsing or further computation by other applications.

```
data plants;
   input type $ @;
   do block=1 to 3;
      input stemleng @;
      output;
      end;
   cards;
clarion  32.7 32.3 31.5
clinton  32.1 29.7 29.1
knox     35.7 35.9 33.1
o'neill  36.0 34.2 31.2
compost  31.8 28.0 29.2
wabash   38.2 37.8 31.9
Webster  32.5 31.1 29.7
;

data mileage;
   input mph mpg @@;
   cards;
20 15.4 30 20.2 40 25.7 50 26.2 50 26.6 50 27.4 55  . 60 24.8
;

/* Choose XML destination in ODS */
ods xml file="c:\temp\glmex.xml";

proc glm data=plants;
   class type block;
   model stemleng=type block;   run;

proc glm order=data data=plants;
   class type block;
   model stemleng=type block / solution;
   means type / waller regwq;

*-type-order-----------clrn-cltn-knox-onel-cpst-wbsh-wstr;
   contrast 'compost vs others'  type -1 -1 -1 -1  6 -1 -1;
   contrast 'river soils vs.non' type -1 -1 -1 -1  0  5 -1,
                                 type -1  4 -1 -1  0  0 -1;
   contrast 'glacial vs drift'   type -1  0  1  1  0  0 -1;
   contrast 'clarion vs Webster' type -1  0  0  0  0  0  1;
   contrast 'knox vs oneill'     type  0  0  1 -1  0  0  0;   run;

quit;

/* Close ODS destination */
ods xml close;
```

Click here to see the output.

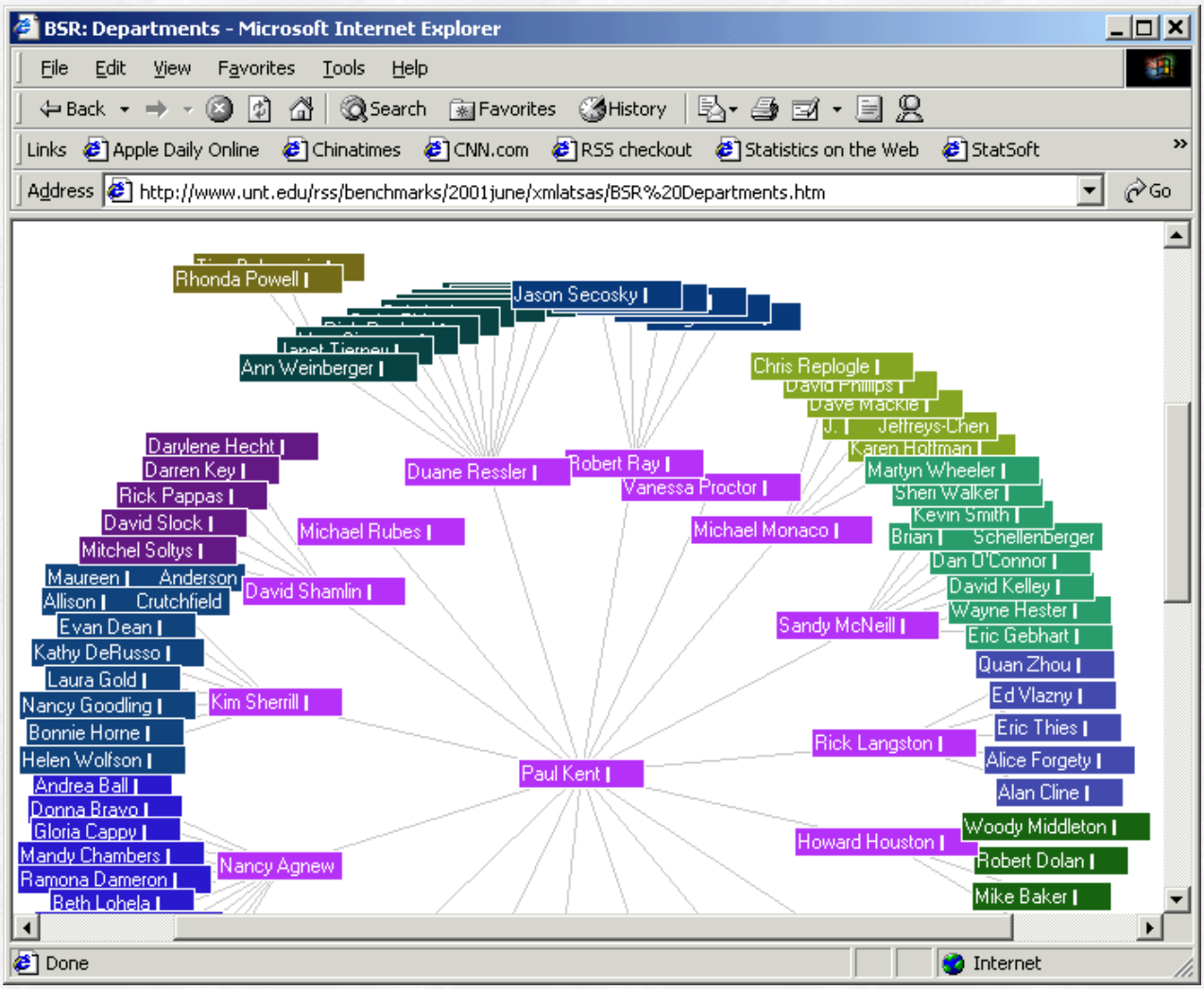
XLM LIBNAME engine

The new, experimental engine can read and write XML files in different formats including Oracle, OIBDBM (Open Information Model (Database Schema Model)) and bare HTML. The syntax is just like:

LIBNAME *libref* XML '*external-file*' <*XML-engine-options*>;

whereas the engine is pointing to a file

The following sample output illustrates the marriage of XML with Java applet in generating a dynamic organizational chart.



An example XML page of a java-enabled, dynamic organizational chart (**For Windows IE 5 only**)

Incorporation of XML in SAS reminds me of the mainframe programs that have embedded data. Those programs were considered clumsy and prone to typo error or file corruption. Also, this method cannot accommodate sizeable data. When space was a major issue in the old days, these programming practice was considered inefficient and unreliable. Programmers later develop practices to divide program and data into separate files and routines that called in external data file. It is more secure to put data in one file while more flexible to program syntax in a separate file. On top of that, program can use different programming skills or languages to read in the raw data file. ICPSR, for instance, delivers datasets in this manner: one raw data file one SPSS syntax file and one SAS syntax file.

Flexibility however was achieved at the expense of data and syntax segregation. Data and metadata have to be delivered in multiple files. When one of the files, particularly the syntax file, is missing or contaminated, the raw data would be rendered useless.

XML is certainly an evolved method that delivers data in a self-contained format: data file itself carries the metadata so every piece of information is carried in one single file for different applications on various environment. Although space-intensive it maybe, one single file can contain much more "real, rich" data than raw data file or data in any other format!

XML is the way to go. Before long, a new data language standard will emerge for all statistical and data applications. Despite that various data formats will prevail for a while, data crunchers will hopefully enjoy

soon as much unity as our present diversity.

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* From Nelson, Greg Barnes. 2000. "XML and SAS: An Advanced Tutorial" SAS Advanced Tutorials Paper 13-25 (http://www2.sas.com/proceedings/sugi25/25/aa/25p013.pdf)

Reference:

Kent, Paul. 2001 SUGI 26 Presentation, *SAS Takes Advantage of XML*.(Powerpoint presentation).

Nelson, Greg Barnes. 2000. "XML and SAS: An Advanced Tutorial" SAS Advanced Tutorials Paper 13-25 (http://www2.sas.com/proceedings/sugi25/25/aa/25p013.pdf)

Network Connection

By Dr. Philip Baczewski, Associate Director of Academic Computing

A modest proposal

We live in the era of online education. We are seeing the beginnings of a radical change in the way that education is delivered in the United States and around the world. Along with the new online delivery methods for education is the corporatization of education. Private companies want to manage our public school systems. We want to see corporate fellows on campus, and corporate skyboxes in our football stadiums, and corporate logos on our sports jerseys. In fact, you might say that the country is gripped by a culture of corporate interaction. Students see themselves as consumers of education and they want to be treated as customers. To support our customers, we'll have to retool our data systems and move to a system of education in any place, at any time, and for any reason.

In light of this new view of the student as consumer, it only seems logical to retool some of the terminology and attitudes of the past and bring a modern face to education. One glaring deficiency in the relationship with our customer is the whole concept of grades. The last thing a customer wants is to be rated on how well they utilize the product you are selling. To boost customer retention, it is suggested that the letter grade system be abandoned and replaced by the concept of course completion. Customers should be assured that they have satisfactorily completed a course without the imposition of a judgmental rating of the worth of their work.

Of course, the concept of failure is totally counter to customer retention. The worst thing you can do is tell a customer that they have failed. Instead, such a condition should be referred to as a completion deficit. If necessary, customers can be informed that they have a course completion deficit and may need to avail themselves of further course product to alleviate the deficit. In this way the concept of a chronic failure is replace by a condition of completion deficit disorder, a much more soothing explanation which removes any fault from the customer and may open up avenues for new Federally funded research.

The whole manner of education is changing and deserves a more contemporary description. Classes are no longer discernible in online instruction, where individuals can contract for their learning needs and pursue their goals in the comfort of their own home, without subjecting themselves to the distractions of others in an unfamiliar and rigid classroom setting. Instead, we simply have courses. Knowledge is referred to as content, and the delivery of these courses is now our product. This allows us to assure our customers that our courses contain the most up-to-date and useful content and are among the finest product offered by contemporary universities.

Obviously, the title of professor is totally counter to customer relations. For the efficient delivery of the course product, content needs to be relayed in an objective and inoffensive manner. Customers want an expedited learning process and do not want to be subjected to extraneous professed opinion which might require them to evaluate content from several diverse perspectives. The title of professor can be replace with that of content engineer, which is a much more contemporary term and much more impressive to those in a corporate culture. Content engineers will be aided by content transfer specialists who will provide the technical resources to ensure that the course product is readily available online.

Finally, with a more corporate approach to our customer base, the appropriate measures for customer retention, and the attention to providing an accessible product, we can utilize corporate methods for attracting people to our product. Our customers can be told that graduates are among the leaders in industry, government, and the arts, without us having to provide the detail that they are among them waiting their tables, washing their cars, and baby sitting their children. In this way, we can maximize our delivery of product and take a leadership position in developing a broad customer base. If we are Swift, we will determine exactly how to proceed with this proposal.

List of the Month

Each month we highlight an Internet, USENET Special Interest Group (SIG), or similar mailing list(s) or Website(s).

ECOPLEX

Environmental Conditions On-Line for the Dallas-Fort Worth MetroPLEX

Last month the "List of the Month" was Pollen.com. Continuing on that theme, this month's "list" comes from right here at UNT. ECOPLEX (http://www.ecoplex.unt.edu/) is a US-EPA funded project led by UNT and the City of Denton and is hosted by the UNT Institute of Applied Sciences and the Geography Department.

According to the ECOPLEX Website, its purpose is to inform citizens of the current, historical, and near-term forecasts of environmental conditions to which they are exposed, including water, land, sun and air. The data are communicated as past, current and predicted conditions. Curricula and workshops for teachers on utilizing this information in local classrooms are also available. For more information, see EMPACT and ECOPLEX.

WWW@UNT.EDU

Exciting New Features in ColdFusion 5

By Shannon Peevey, UNT Central Web Support

We are living in an exciting time when technology is changing our lives. We are seeing hybrid cars on the street, and the end of analog television, and we are, amazing as it may seem, becoming used to the fast pace at which this world moves, as if the speed itself wasn't a new phenomenon which has only occurred during the second half of the last century. To keep up with this pace, we are constantly bombarded with new ways to stay on the cutting edge, and develop and perform faster, allowing us to have more personal time for ourselves... Or else, that is what they are telling us... To achieve this, we are given more and more products that dub themselves Rapid Application Development, or RAD, products, but few actually achieve this status...

Enter Macromedia ColdFusion 5

Macromedia ColdFusion 5 is the first release of the popular internet RAD software, formerly known as Allaire ColdFusion. This name change comes about as a direct result of the merger of the Web design giant, Macromedia, and the dynamic Web content behemoth, Allaire, in what is a move to solidify each company in the marketplace, and to offer the end-user/designer a complete Web content design package. The ColdFusion 5 package, signifies this step towards an integrated package, and comes to us from a history of powerful, and extremely stable precursors. Macromedia knows this, so they have built upon this foundation, and then, looking to the future, added some powerful, cutting-edge tools for the designer and the administrator. In this article, I would like to cover a few of the features for both the designer and administrator, and will hopefully whet your appetite for the upgrade to ColdFusion 5 that we are planning for fiscal year 2001-2002.

For the designer . . .

First, for the designer, they have added the ability to create custom tags and "user-defined functions" which add extensibility and reusability to the code that you are creating. Custom tags allow you to create something unique for a particular purpose in a particular application, and push the boundaries for the uses of ColdFusion 5. If you have seen some of the great ColdFusion sites that are out on the Web, (www.laksamana.net, www.balibalibali.com, www.cfvault.com, www.dragonballz.com (which was created in part by our very own Kenn Moffitt!)), you will see what Web designers have been able to do with the older versions of ColdFusion, and am sure you will be able to create something new, and very innovative with this new extensibility. The user-defined functions allow the designer to create a function for an application, and then pull that function out of the application and drop it quite easily into a new one. According to reports, this single feature has dropped production time in half on the creation of test applications.

Another exciting new feature, is the ability of an application to access information from a disparate array of data sources using a standard SQL statement. This is called a "Query of Queries", and allows you to access a database, multiple database, multiple databases from multiple companies, (ie. Microsoft and Oracle), or even an e-mail system and a database... As you can see, ColdFusion 5 is pushing the envelope on querying data sources, you decide the limitations...

Speaking of data connectivity, the Merant's DataDirect Connect ODBC Drivers that are being shipped with ColdFusion 5, have been shown to perform five times faster than the traditional ODBC drivers that were being shipped in previous versions. And, in addition to the speed at which the new drivers perform, ColdFusion 5 allows incremented page delivery to speed up the rate at which your application downloads at home, or at work. Incremental delivery allows for the information to be posted at the time the browser receives the information, and not at the time when all of the information has been received by the browser, as was the case in previous versions.

For the administrator . . .

For the administrator, we are getting a new archive tool, that will allow for easy backup and portability for your applications. We will also get SNMP, Simple Network Management Protocol, support, allowing us to monitor performance from remote locations and make sure that your applications are on-line and running at the optimum rate possible. We are also excited about the amount of integration that is seen between the newest version of ColdFusion and third-party products, allowing for greater choice of operating systems, enhanced COM support, and load balancing, and allowing us to bring you the most stable and enjoyable environment to work on.

In Summary

As you have seen in this article, we are looking at an exciting time here on campus with an upgrade to our newest dynamic Web content development tool, ColdFusion 5, and at the same time, continue with the highest degree of accessibility, stability, and proven performance that you have come to expect from ColdFusion, and Central Web Support. As you may be aware, we are sending out notifications of other upgrades that are going to be taking place concurrently with the ColdFusion upgrade, and I hope that you check out my other articles in this issue of *Benchmarks Online*, and in those to come, to learn more about what we hope to do for your Web site here on campus.

If you have any questions about ColdFusion 5 and/or how you can get your dynamic UNT Website hosted on our server, feel free to write me at: speevey@cc.admin.unt.edu

Short Courses

By Claudia Lynch, *Benchmarks Online* Editor

ACS Short Courses are are in high gear. In fact, there was such a strong response for the FrontPage classes that they filled up in two days. There are spaces left in all the Statistical Package/Research Courses. Please consult the Short Courses page to choose the classes that you would like to attend.

Customized Short Courses

Faculty members can request customized short courses from ACS, geared to their class needs. Other groups can request special courses also. Contact ACS for more information (ISB 119, 565-4068, lynch@unt.edu).

Especially for Faculty and Staff Members

In addition to the ACS Short Courses, which are available to students, faculty and staff, staff and faculty members can take courses offered through the Human Resources Department, the Center for Distributed Learning, and the UNT Libraries' Multimedia Development Lab.

Andrew McGregor, Messaging Support Specialist (amcgregor@unt.edu) 940-369-7688 is currently offering monthly **Basic GroupWise** (BGW) and **Document Management** (DM) Classes. You can Sign up on-line, or you can send an mail to Lauren Sutherland in Human Resources to sign up. Just remember to include your name and the class you would like to attend. All classes are from 10:00 to 12:00 in ESSC room 152. Following is the list of classes:

Class	Date
DM	Tuesday, June 26
BGW	Tuesday, July 24
DM	Wednesday, July 25
BGW	Friday, August 17
DM	Tuesday, August 14

Center for Distributed Learning

The Center for Distributed Learning offers courses especially for Faculty Members. A list of topics and further information can be found at http://www.unt.edu/cdl/training_events/index.htm The center also offers a "Brown Bag" series which meets for lunch the first Thursday of each month at Noon in ISB 204. The purpose of this group is to bring faculty members together to share their experiences with distributed learning. One demonstration will be made at each meeting by a faculty member with experience in distributed learning. More information on these activities can be found at the Center for Distributed Learning

Web site.

UNT Libraries'

The UNT Libraries' Multimedia Development Lab has also offered free training to all University of North Texas faculty and staff in the basics of FrontPage and information architecture in the past. For more information see http://www.library.unt.edu/media/services.htm#Distributed.

Technical Training

Technical Training for campus network managers is available, from time to time, through the Campus-Wide Networks division of the Computing Center. Check the CWN site to see if and when they are offering any training.

UNT Mini-Courses

These are a variety of courses offered, for a fee, to UNT faculty, staff and students as well as the general public. For additional information surf over to http://www.unt.edu/ccecm/cont_ed/Minicourse/Courses/UNT_Minicourse_Page.htm .

Alternate Forms of Training

The Training Web site has all sorts of information about alternate forms of training. Training tapes, Computer Based Training (CBT) and Web-based training are some of the alternatives offered.There are also handouts for computer training on the following topics:

- GroupWise 5.2 Handout for Win95/NT
- FAQ for GroupWise 5.2
- Computers - Back to the Basics
- Introduction to Windows 95 /98/NT
- Introduction to Word 97
- Advanced Word 97 - MailMerge It Together
- Introduction to PowerPoint 97 (Creating a Slide Show)
- Introduction to Remedy (THE Call-Tracking Program)
- StudyWeb AND, the award winning Introduction to Excel 97

Adobe Acrobat Reader Format only for the following:

- Introduction to Microsoft Word 2000
- Introduction to Microsoft Excel 2000
- Creating a Slide Show with PowerPoint 2000
- Using Netscape Communicator & the UNT Home Page

Use the Internet to search for answers to Microsoft Office problems. See http://www.zdnet.com/zdhelp/filters/office/ December 1999's "List of the Month" offers links to free Microsoft Word and Excel information also.

IRC News

Minutes provided by Sue Ellen Richey, Recording Secretary

IRC Regular and Ex-officio Voting Members: *Judith Adkison, College of Education; Ginny Anderson, Fiscal Affairs; Donna Asher, Administrative Affairs; Craig Berry, School of Visual Arts; Sue Byron, Faculty Senate; Bobby Carter, UNT Health Science Center; Jim Curry, Academic Administration; VACANT, Student Association, Don Grose, Libraries; Jenny Jopling, Instruction Program Group; Joneel Harris, Administrative Program Group; Elizabeth Hinkle-Turner, Standards and Cooperation Program Group; Abraham John, Student Affairs; VACANT,Graduate Student Council; VACANT, University Planning Council; Ramu Muthiah, School of Community Services, GALMAC; Jon Nelson, College of Music; Robert Nimocks, Director, Information Technology,UNTHSC; Patrick Pluscht, Distributed Learning Team; Mark Rorvig, Research Program Group (Acting Chair); Paul Schlieve, Communications Program Group; Kathleen Swigger, College of Arts and Sciences; Philip Turner, School of Library and Information Science and University Planning Council (Chair, IRC);; Virginia Wheeless, Chancellor; John Windsor, College of Business.* ***IRC Ex-officio Nonvoting Members:*** *VACANT, Telecommunications; Bill Buntain, Computing Center Networking; Jim Curry, Microcomputer Maintenance Shop; Richard Harris, Computing Center; Coy Hoggard, Computing Center; Joel Lanpher, UNT Health Science Center; Maurice Leatherbury, Computing Center; Sue Ellen Richey, Computing Center (Recording Secretary). [As of 10/2000]*

No new IRC minutes were available at publication time. To see past IRC minutes, consult our back issues.

IRC Meeting Schedule

The IRC generally meets on the third Tuesday of each month, from 2-4 p.m., in the Administration Building Board Room. From time to time there are planned exceptions to this schedule. All meetings of the IRC, its program groups, and other committees, are open to all faculty, staff, and students.

Staff Activities

Transitions

The following are new employees:

- **Tracy Hansen**, Administrative Assistant, Computing Center Administration.
- **David George**, Production Control Scheduler, Production Control.
- **Danja Anthony**, Data Entry Operator, Data Entry.
- **Jon Ingle**, Computer Support Specialist, Central Web Support.
- **Babak Sekandary**, Computer Operator (part-time).

The following people no longer work in the Computing Center:

- **Howard McCormick**, CPU Operator.
- **Jason Tucker**, CPU Operator (part-time).
- **Ryan Boettger**, Data Entry Operator (part-time).
- **Brandon Boyer**, ACS General Access Lab Tech Support (part-time).
- **Stephen Parmer**, I/O Consultant (part-time).
- **John Trautman**, I/O Consultants (part-time).

Changes

- **Blake Broyles**, from ACS General Access Lab Consultant to ACS General Access Lab Tech Support.

Awards, Recognition, Performances

- They had so much fun last year, they decided to do it again. Several members of the Computing Center will be performing again this year in the Music Theatre of Denton annual Community Musical Fundraiser (Denton Civic Center, 8 p.m.). This year the show is "Dogs" (a Donna Trammell parody of the musical, Cats). They are doing a number called the "Howl"-elujah chorus to the tune of "Blue Moon." **Howard Shaw**, Student Records Data Systems Programmer; **Sandy Burke**, Manager of Computing Center Help Desk Support Services; **Jennifer Lafleur**, Assistant Director for Computing Center Planning and Administration; and **Linda Wallace**, Student Records Data Systems Programmer/Analyst, Student Records Data Systems Programmer/Analyst. **The musical is June 22 and 23, and everyone is invited to attend!**

- **David Walden**, Network and Communications Services Telecom Specialist , was recognized as a Soaring Eagle recently in the June/July 2001 *Human Resources Newsletter* for going "above and beyond the call of duty when [he] installed new equipment so a colleague could move her computer to a more workable location." He will receive an award at the President's staff sack lunch on October 16, 2001

- **Rebecca (Becky) Parton**, Student Records Data Systems Programmer, was also recognized in the June/July 2001 *Human Resources Newsletter* for her recent TIPS suggestion.

Campus Computing News

By Dr. Maurice Leatherbury, Senior Director of Academic Computing

UNT System Acquires Campus-wide Oracle Database License

At a special meeting of the UNT Board of Trustees on Thursday, June 14th, the Board approved the purchase of an Oracle Database Enterprise Edition license along with some database development tools, data warehousing tools, and customer relationship management tools. The license gives any of the UNT system component institutions (currently UNT in Denton, the Health Sciences Center in Fort Worth, and the System Center in Dallas) the right to install the Oracle DBMS on an unlimited number of servers on their campuses and to grant Internet access to an unlimited number of users to the programs licensed under the contract.

UNT chose the Oracle database management system as the foundation for a future enterprise information system (EIS) because it is widely considered to be the preeminent large system DBMS available today. All of the leading contenders that UNT is considering for the EIS operate under Oracle and by purchasing the foundation tools today the university is preparing itself to have the infrastructure in place to implement the EIS applications (human resources system, financial system, student records system, etc.) when those applications are selected.

The first uses of the Oracle DBMS and tools that have been purchased will be to develop a data warehouse application and to support UNT's development partnership with Oracle for an advanced student recruitment package. The data warehouse will entail extracting historical data from the current mainframe system, making the data available to authorized persons over the Web, and updating the data on a regular basis to support ongoing university operations. For example, one Web report might give financial account holders the ability to view the previous day's transactions against their accounts.

The customer relationship management (CRM) tools that were purchased underlie the effort that UNT hopes will eventually replace the current Wang system that manages our undergraduate admissions prospecting and recruitment materials distribution system (i.e., mails out information pieces to prospective students.) If the CRM application works as planned, it will enable UNT to communicate electronically, either via e-mail or fax, to students who inquire about programs here. It will also manage "campaigns" such as the capital campaign or a summer recruitment campaign. UNT, along with half a dozen other universities and colleges, is working with Oracle developers to develop templates for such applications in the higher education market.

Coy Hoggard, Senior Director of Administrative Computing, and Joneel Harris, Interim Associate Vice President for Enrollment Management, are the co-project leaders for the enterprise information system. The next step in the selection process of the EIS is the release of an RFP to potential vendors: it's expected that that will occur within the next two months. An extensive review

of the responses will follow the RFP, with site visits to current customer colleges and universities possibly part of the evaluation process.

Microsoft Campus Agreement To Be Renewed

We're in the process of renewing the Microsoft Campus Agreement, the contract that allows UNT Denton and System Center departments to install several Microsoft software products on any machine on campus without having to pay per-machine fees. Microsoft recently announced a revision of the Campus Agreement that will affect UNT next year, but we're able to renew the old version of the license this year. Next year's version is likely to cost us significantly more than this renewals and removes home distribution of Microsoft operating systems (Windows ME and Windows 2000, for example) options from the contract. We'll provide more information next year when it's time to renew the Campus Agreement again.

Any UNT employee (not Health Sciences Center employees, unfortunately) can purchase the products covered under the Agreement in the bookstore for $7.00 per CD. The products currently covered are:

- Windows 98 Upgrade
- Windows NT 4 Upgrade
- Windows 2000 Upgrade
- Windows ME Upgrade
- Office 97
- Office 2000
- Office 2001 (Macintosh)
- Office XP (available June 14th)
- FrontPage 97
- FrontPage 2000
- FrontPage 2002 (available early July)
- FrontPage for the Macintosh
- Visual Studio 4.0

The license specifically states that employees can install these products on their home machine or laptop *for use in conducting university work*. Employees who leave UNT must remove any product purchased under the Campus Agreement from their home computer and destroy the CD's used to install the software.

In the past two years that the Campus Agreement has been in effect, 1,362 UNT employees have purchased 2,341 products under the agreement. Windows 98 upgrade, Office 2000, FrontPage 2000, and (surprisingly) Visual Studio 4.0 have been the most popular products.

Expanded Helpdesk Hours

The Computing Center Support Services HelpDesk is now open on Sunday evenings from 5 p.m. until 10 p.m. Consult the Helpdesk Website for their complete schedule and other information.

Important Academic Mainframe News

By Dr. Philip Baczewski, Associate Director of Academic Computing

OS/390 MVS Maintenance scheduled

An MVS batch system upgrade is scheduled for July 12-13, 2001 on the Academic Mainframe partition. If all goes well, the batch system might be available by July 13, however, batch job processing also might be unavailable for that entire time period, and plans should be made accordingly. This upgrade is necessary under a contractual agreement with IBM in order to pay an additional licensing fee for the MVS Operating System. There are no operational changes anticipated in this upgrade. The VM/CMS (login) system will be unaffected by this upgrade and will remain available during the upgrade.

VM/CMS continues in the Fall

It appears that funding will be available next year to continue operation of the VM/CMS system. You may recall that IBM discontinued its Higher Education Software Consortium program under which we were licensing the VM/CMS software. IBM finally announced a replacement program and it appears that the new discount for licensing the software will be sufficient to allow us to continue use of that operating system and most of its associated software. Work continues, however, on identifying a replacement Administrative data systems processing platform. Since it is unlikely that the new platform will be an IBM Mainframe, **it is likely that Mainframe services will be discontinued sometime within the next 2-3 years**. Please contact me if you have any questions in this regard.

Secure Communications to be Required for ACS UNIX Hosts

By Dr. Philip Baczewski, Associate Director of Academic Computing

As of September 1, 2001, access via telnet and ftp to the ACS UNIX hosts sol, jove, and terra will no longer be possible. After September 1, you must use an SSH-compatible client for access.

Standard telnet and ftp clients pass login information, including your password, in clear text which is readable by anyone who can capture network traffic. The SSH (Secure SHell) protocol employs encryption of all communication with the host machine, thereby increasing the level of security in the process.

It is important to increase security because a common method of operation for system crackers is to capture a login name and password, and then use that name and password to gain entry to a UNIX host to support a denial-of-service attack or other unauthorized activity. This is not just a theoretical concern. In the past, there have been numerous incidents of UNT servers and workstations being compromised and used in such a manner, and these incidents are continuing to occur with increasing frequency. Secure protocols should be used whenever possible when passing sensitive information or login passwords over the Internet.

Secure SHell programs

There are several Secure SHell programs which provide the same functionality as telnet. Instead of ftp, the SSH equivalent is SCP (Secure CoPy). SCP allows copying of one or more files from one computer to another with login information and data encrypted during the process.

Free SSH clients are available at:

- Windows:

  http://www.chiark.greenend.org.uk/~sgtatham/putty/

  http://www.appgate.com/mindterm

- Mac:

  http://www.lysator.liu.se/~jonasw/freeware/niftyssh/

People using the unt.edu network may download these programs from the appropriate platform area on the UNT ftp server: ftp://ftp.unt.edu/software/

You may see a notice in the Macintosh Nifty Telnet SSH programs "About" box that Nifty Telnet cannot be used in the United States. According to the Nifty Telnet web site, "September 6, 2000, RSA Data Security, Inc. today put the RSA public-key encryption algorithm into the public domain, meaning that

United States users can now download and use NiftyTelnet SSH legally. This was done two weeks before the expiration of their patent granted in 1983."

If you have questions about installing or using any of the programs mentioned above, please contact the Computing Center helpdesk at helpdesk@unt.edu or 940-565-2324.

BulkMail gets an Update

By Dr. Philip Baczewski, Associate Director of Academic Computing

Development is continuing on the Student Bulk E-mail system to enhance its functionality and security. BulkMail is handy way for Professors or administrators to send E-mail to students in their classes or to selected groups of students based upon the student's classification, College affiliation, or major.

As of Thursday, June 7, BulkMail has been changed to use the same authentication server as is used by EagleMail and Web publishing. Included in this change is an option to set a password if no password exists. Faculty/Staff who have activated UNT Internet Services will use that ID and password for logging into BulkMail. Faculty/Staff who have not activate UNT Internet Services can enter their EUID in the login page and will be routed to a set of pages where they can set a password which will work with bulk mail.

This change has increased the security of BulkMail in two ways. First, the login page is now running on a secure server and your username and password are transmitted on the network as encrypted text. Second, all communication between the authentication web page and the authentication server is encrypted, ensuring that your password cannot be easily obtained via network "sniffer" programs.

Please note that it is **not** necessary to have a UNT Internet Services or EagleMail account to use BulkMail. Setting a password to use for BulkMail does not prevent application for UNT Internet Services at a later date. This is true, however, ONLY for those who have NOT activated such accounts. If you can't remember your Internet Services (i.e. your dialup or jove) password, you can come to the Helpdesk in ISB 119 with your UNT ID card and have that password reset.

Password changes for BulkMail login can now be done via the UNT Internet Services Account Management page (http://www.unt.edu/internet/manage.htm). If you haven't activated Internet Services, this will only affect your BulkMail login. Otherwise, remember that your BulkMail, dialup, web publishing, and possibly jove or sol password will all be changed in the process.

Please direct any questions about BulkMail to Dr. Philip Baczewski (baczewski@unt.edu), Associate Director of Academic Computing. Your feedback is an important part of keeping BulkMail a useful tool for the Academic community.

The Force is on the way ...

By Claudia Lynch, *Benchmarks Online* Editor

Dr. Hinkle-Turner is on vacation and is thus taking a break from her General Access Lab feature. As she mentioned in April, UNT has for several years offered extensive online training free-of-charge to students, faculty and staff. This training is provided by Smartforce (formerly CBT Systems), and is a Web-enabled catalog of courses featuring training in such topics as Cisco Desktop Protocol Design, Firewall Principles and Internet Security, JavaScript Language Basics, Oracle 8i and Microsoft Office 2000. For a list of courses that are currently available here at UNT, see: http://www.unt.edu/training/CBT.htm A printed list of courses is also available as a handout at the Computing Center Helpdesk in ISB 119.

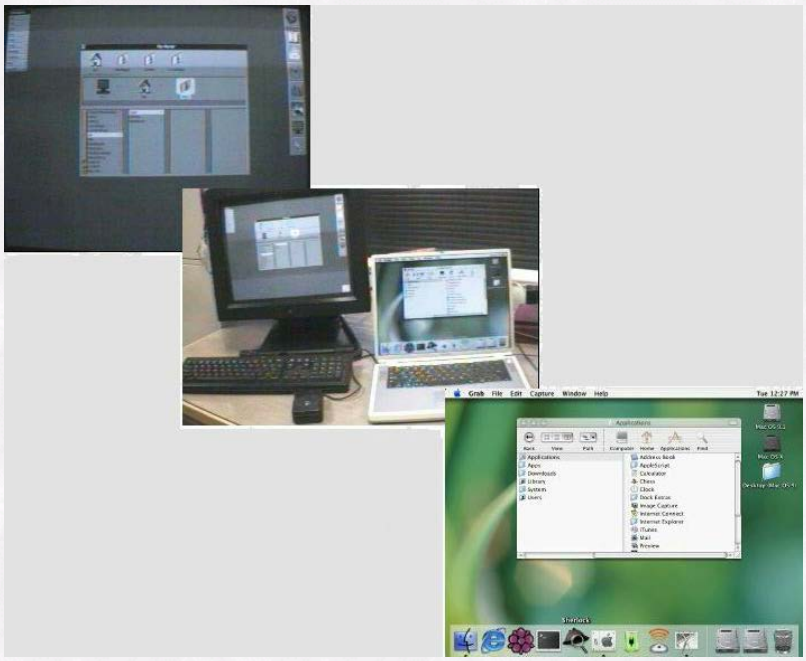
The time-line for the Smartforce system being in full production has been pushed back to the end of June [please delete all links to cbt01.library.unt.edu if you haven't done so already]. Look for updates via the Web and E-mail about this valuable learning service. Any additional questions or comments about the Smartforce computer-based training system should be directed to ehinkle@unt.edu.

Fans of the Lab-of-the-Month can find an index with links to all the articles, so far, here:

http://www.unt.edu/benchmarks/archives/GeneralAccessLabs/Glabs.htm

Mac OS X is Here!

By Dr. Philip Baczewski, Associate Director of Academic Computing



In 1990, when I spent a summer month at Stanford developing computer-based sound compositions, the platform of choice was a NeXT. It was the choice of composers, because of its built-in sound and music generation capabilities, including an on-board DSP (Digital Signal Processor) chip to render creations in stereo CD-quality sound. The NeXT was an intriguing work environment: a fairly sophisticated graphical user interface, a unified display and print environment based upon the Postscript page description language, and best of all, a command line "shell" window to access functions of the system via a set of commands borrowed from UNIX.

A bit of history

Apple Computer recently began shipping copies of Mac OS X (that's "X" as in the Roman numeral 10, and not "X" as in eXperimental, but I suspect "X" as in NeXT). It's not surprising that OS X is similar in concept the operating system which ran on the NeXT. This is because Apple used the NeXT operating system as the basis for development of OS X. The NeXT was the brain child of Apple cofounder Steve Jobs, who in a fit of pique in the late 1980s, decided to take his ball and go play elsewhere. The result was the NeXT, supposedly the "next computer" for the rest of us. NeXT had phenomenal support from investors, but unfortunately, never much of a customer base outside the university market which Jobs chose for his initial introduction (I'm sure it was just a coincidence that Apple was the leader in that market at that time). Through the early 1990s NeXT dwindled from being a hardware and software company to being just a software company. Apple, seeking a solution to the development of a modern protected memory operating system, bought NeXT and "reacquired" Steve Jobs in the same deal (Jobs has gone on to reassume leadership of Apple and greatly improve the product line and business practices there).

The basics

Not much of the old NeXT OS is directly visible in OS X. What we do find in OS X is the most dramatic change in Apple's Macintosh OS since the introduction of System 7. Instead of just switching between tasks to provide the illusion of simultaneous execution of programs, it has at its base the OS technology to execute multiple applications in their own protected memory space. The most noticeable benefit to Macintosh users is that when a program misbehaves or crashes, it no longer can take the whole operating system with it (the infamous "An error of type ## has occurred - you 'd better get out while you still can.") Of course, this assumes that there are actually applications to run under OS X, but we'll get to that later.

On top of this foundation is a slick new graphical user interface which bears little resemblance to its predecessor. Named "Aqua," the GUI has shiny ray-traced buttons, semi-transparent windows, and some new features which take advantage of the increased processor speed and graphics capabilities of new Macintosh hardware. Also included is the capability to run applications in an OS 9.1 "Classic" compatibility mode. This feature allows use of many existing applications while we wait for native OS X applications to appear. Mac OS X will only run on later PowerPC G3 systems (iMac and later) as well as the new PowerPC G4 systems. If you've got a poor little 7100/66 at home like I do, then don't bother even thinking about OS X.

So long System 7

If you are a long-time Mac user, then your first interaction with OS X may come as a bit of a shock. There are a number of things which you are used to that you won't find in OS X. The most surprising (shocking?) is the replacement of the concept of multiple Finder windows with one browser-like window with a toolbar to house multiple gadgets and shortcuts. On the face of it this seems like it's borrowed from that other OS that's popular these days until you remember that the NeXT was the first to feature such a file browser in its graphical interface. Still, it's a bit disturbing for a long-time Mac user to double-click on a folder and have the contents come up in the same window.

There are three view modes, however, which may allow you to adapt the Finder to your mode of work. In addition to the icon view which is the default, there is the traditional list view which allows you to open folders in a hierarchical list display and there is also a column view which opens successive folders in a two column display, with a horizontal scroll bar to move forward an backwards in the hierarchy (just to set the record straight, this also was a feature in the NeXT OS which predated any such concept in that other popular OS.)

The Finder windows are customizable to a certain extent, allowing you to choose what tools you want to always see, like "Find" or shortcuts to the Applications folder. In addition to the view selector and back button for navigation, there is a path pull-down button, similar to the Command(Apple)-Click on the window title in System 7 and above. The first rude awakening I had in this environment was when I used Command-N to create a new folder -- instead I got a new Finder window. This is a good thing, since you do have the ability to copy between multiple windows. It's a bad thing that they've reassigned a common keystroke that I use all the time. "New Folder" is now Shift-Command-N. The Command-N seems to be consistent among applications -- that is, it will always open a new window in that application.

Gadgets galore

OS X features some newly designed and in some cases new window gadgets. Mac users have become used to horizontal and vertical window scrolling gadgets and they work in the same way, but with a much prettier shiny blue slider. Since the beginning, Finder windows have had a close gadget and a maximize gadget, the latter toggling between preset or user set maximum and minimum window dimensions. In OS X, there are three shiny buttons at the left of every window title bar. They are, from left to right, red (X), yellow (-), and Green (+). The red button closes a window, and the little X appears when your mouse arrow scrolls over the button to help you remember its function. The yellow button is new and is roughly equivalent to the "hide application" feature of the multifinder (more on where the application goes later). The green button is a window size toggle which will maximize or minimize the application window (except in Sherlock, which for some reason only maximizes with no going back -- probably a bug). One neat thing about these gadgets is that they work even if the window is not in front. If your mouse button moves over a gadget set for a lower window, you can close it, hide it, or maximize it without having to click it first to bring it to the top and make it active.

Finder windows have a clear elongated button on the right to hide or reveal the tool bar. There is also a resize gadget in the lower right-hand corner of all windows, which can be used via the click-hold-drag methodology, the same as in previous Mac OS versions. It is also worth noting that the Command-click on the finder window title still pulls up the descending folder path as mentioned above. Once you get used to the new gadgets, controlling the windows on your desktop is easy and convenient. In all the applications I've seen so far, the red button only closes the window and does not terminate the application. This is consistent with the previous operation of the close window gadget, however, many software developers for Mac OS 9 and below would cause the application to quit when the last or main window was closed. This did help prevent the novice Mac user condition where 10 applications were open without windows being open and they'd be sitting there wondering why their Mac was running so slowly. It was inconsistent, however, with the design of the OS look and feel and led to an inconsistent operation between Macintosh applications. I hope that the standard can be better maintained in OS X.

Into the dock

In OS X the Apple menu is still at the top left of the screen, but unlike its predecessors, it is not user configurable. Instead, it has a fixed set of menu items, including the sleep (if applicable), restart, and shut down directives. In place of the "Apple Menu Items" folder found in System 7.5 and above, there is a new feature called the "Dock." The dock is a strip of icons which live at the bottom of the screen and represent your favorite or most used applications, the finder, and the trash can. Instead of the upper right-hand pull-down menu

to switch between or recall hidden applications, you can do so in the dock instead. In other words, when you click the yellow gadget button described above, the application window goes away, and the application icon appears in the dock. In fact, by default, the application window is animated so that it appears to be sucked into a dock which is suddenly exhibiting the gravitational strength of a black hole.

The dock also has an array of tricks if you want to use them. The icons can be small, large, or any size in between. As you move your mouse arrow over an icon in the dock, it can grow larger than the others, so you can see which you'll be selecting (a bit of a gimmick, since the application name also appears above the icon). The dock can be always present on your screen or can hide and only appear when your mouse arrow moves to the bottom of the screen where the dock lives. With the demise of the Apple Menu Items folder, I thought I'd lost a handy trick which make navigating a drive in or folder easy in OS 9 or below. You can place an alias for the drive in you Apple Menu Items folder, and it can then provide instant navigation within the folder structure hierarchy. It turns out that the dock provides an even easier solution. You can just drag a disk or folder icon to the dock, and it's icon will stay there and provide a browsable hierarchy (click and hold) or open immediately upon a single click.

In addition to the dock, there are differences in menu organization in OS X. The Apple menu now includes functions like shutdown and restart (previously found in the Finder "Special" menu). Recent applications, documents, and servers menus have been consolidated into a "Recent items" menu. In addition to the Apple menu, there is now an application menu which has "about," "Preferences," "Quit," and the hide and show selections previously found in the right-hand application selection menu of OS 9 and below.

Just to set the record straight, the dock was also an innovation found in the NeXT OS. In OS X it is a center of your GUI activity, allowing you to select applications, switch between applications, and browse your folder hierarchy if you choose. It is also a replacement (albeit a limited one) for the control strip (did I mention that that's gone too?). Apple includes some "Dock Extras" which you can place in your dock to have immediate access to setting video resolution, monitor your battery (if applicable) and airport use, and control iTunes. Once it is configured to your preferences, you'll find the dock a handy addition to the Mac OS features that you are used to.

No control?

Another thing that's missing in OS X are the control panels. Instead of the list of control panels in the Apple Menu, there is now a Preferences application which allows you to control various aspects of the OS X configuration. Here you'll find mouse preferences, network configuration, and a number of the other usual control panel suspects. You can drag your most used preference icons to the tool bar of the preferences window for "instant access" from whatever settings you happen to be controlling.

Some preferences are noticeably missing. The Extensions Manager, for example, is gone because there are no more extensions (they don't exist in OS X). Others have been consolidated. AppleTalk, TCPIP, PPP, and Modem setup is all done in the Network preferences. One handy addition is a screen saver (its about time) which makes clever use of digital images which can be the ones included by Apple or can be from your own collection. It seems that, unlike the old control panels, third-party application preferences will be handled within that application, however, it may just be too early to tell. If you are wondering what to do with some old third-party control panels that can still run in Classic mode, since they are just applications, they can run from a finder window or even the dock. This scheme works well, once you get used to it, but some old-time Mac users may be pining for their control panels menu.

What's in it for me?

All of the bells and whistles mentioned above still don't answer the question of whether it is worth it to upgrade to OS X. Other than a redesigned graphical interface, the primary benefit from this new OS is its new architecture. A single application can no longer cause the whole operating system to crash, although, I have made it crash while viewing a PDF document on the screen and playing with my PowerBook screen brightness and sound volume keyboard controls (which don't work in OS X, by the way) -- no warning -- just a blank screen, a spinning multicolored disk and a restart of the OS. OS X has some documented bugs as well. If you like UNIX, you now have a UNIX shell window which can be useful for debugging and file manipulation, but doesn't add any functionality that you wouldn't get in LINUX or FreeBSD. There are other implications of the UNIX underpinnings of OS X, including the potential availability of a larger number of open source applications, but we'll save that discussion for a future *Benchmarks Online* article.

Most of these problems are just annoying, like Finder windows which don't remember being resized, and finder windows which don't remember the browsing type you've selected (I like the column mode, but it always goes back to icon or list mode unless you open the root volume, set the browse method and close the root volume without doing any other browsing). The other problem is that it just seems slow. Perhaps it is because I only have a meager 128M of memory in my OS X machine, but switching between programs or

completing tasks can seem to take a very long time, which I suspect can be attributed to memory management. In addition, there are some built-in hardware devices that OS X can't address, such as the DVD ROM drive, and apparently the infrared port on a portable.

Aside from the bugs and foibles listed above, the number one reason not to adopt OS X is that there are just no applications for it, other than several hundred commercial, shareware, and freeware programs that Apple list on its Web site (http://guide.apple.com/macosx/) -- those are mostly utilities and are not the major productivity applications that most people use. Yes, you can run MS Word very nicely in compatibility mode, but why not just run OS 9 and get better performance? The advantage will come when applications are native to the OS X operating system, just like the advantage seen when applications were ported from the Motorola 68000 architecture to PowerPC.

Other than the fact that it is "real pretty," I find no compelling reason for a devoted OS 9 user to use OS X at this time. This is a good foundation upon which to build future applications, but that future doesn't appear to be soon. Maybe Microsoft will surprise us all with a OS X native Office suite, but judging from their Mac version development schedule in the past, we shouldn't hold our breath until 2003 or so. Until then, we can be content with native gems such as BBEdit and GraphicConverter, but that's a bit like living in a house, where only the bathrooms are finished -- there's no doubt that you need them, but there's quite a bit more needed to be comfortable.

For more information about OS X see, http://www.apple.com/macosx/

PostgreSQL -- What is it?

By Shannon Peevey, UNT Central Web Support

The PostgreSQL client/server database, (pronounced post-gres-cue-el), is the most advanced open-source database available today. It is a database system that has come from the shrouded depths of a University of California at Berkeley basement, and which has now moved to the forefront among a plethora of open-source and commercial relational database management systems. It was chosen as the "Best Database Management System of 1999" by LinuxWorld, and was also chosen as the "best Database of 2000" by the Linux Journal. It is used for mission critical applications by such noted companies as Volvo, Reuters, MCI WorldCom, and the National Center for Supercomputing Applications (http://imagelib.ncsa.uiuc.edu), and is the only open-source database system to support Atomicity, Consistency of Preservation, Isolation, and Durability, or ACID, which we will discuss these more in a minute. But for now, we are still plagued with this question...

What *is* PostgreSQL...?

PostgreSQL is a relational database management system that allows us to store and retrieve data according to various parameters given in what we call a query. A query is a statement written in the Structured Query Language, or SQL, which issues commands to which a database reacts and responds to. SQL queries can retrieve information from a database, (SELECT), insert information into the database, (INSERT), or update information in the database, (UPDATE). (There are many more actions that SQL can be used for, but they are beyond the scope of this article for now.) When a query is executed, the PostgreSQL database receives these commands and then returns the values that we want, and can even manipulate that information into a form that we would prefer. (For example, we can sum the total of the returned values or even change the returned string values as all uppercase letters, or lowercase letters .) This is all because it has lined up all of our information in a way that follows the laws of relational algebra, using a system of rows and columns to index and store data. "What is PostgreSQL?", we have asked. PostgreSQL is a relational database management system that is on par with, and has even surpassed, many of its relational counterparts.

First of all ...

The first step in understanding how PostgreSQL surpasses many of it's competitors, is by understanding what it means to support Atomicity, Consistency of Preservation, Isolation, Durability, or ACID. Basically, these daunting words state that PostgreSQL supports "all or nothing" transactions. "All or nothing" transactions are transactions that either work all of the way through, or do not change anything at all. This is important in highly complex database transactions such as those that take place at the ATM machine every day. Suppose you withdraw money from an ATM and the transaction fails, but the ATM issues you the $200 anyway. You wouldn't know that anything foul had taken place, and the bank wouldn't know that $200 had been issued because your account hasn't been updated. Therefore, there would be a discrepancy between your records and the banks, (which could be beneficial in this case ;-)), but would be detrimental anyway. If this happened once, twice, or even 100 times a day, the banking system as we know it would be a thing of the past, but because the bank's databases support ACID, the botched transaction would show up as an error on the ATM display, costing you a few minutes and some grumbling, but nonetheless harmless,

because the database remains unchanged.

Secondly

PostgreSQL also surpasses it's counterparts, with a high compliance with the SQL92 standards. These are the standards that have been set forth by the International Standards Organization (ISO), and are the standards that all database systems try to comply with. (The use of standards allows for a consistency in database interaction, and makes it easier to port knowledge and applications from platform to platform.) PostgreSQL recognizes almost all SQL constructs, such as subselects, transactions, user-defined types, and functions and even extends the SQL language with the addition of non-imbedded cursors, EXPLAIN, which shows the statement execution plan, and many other constructs that are not part of the SQL92 standard. As you can see, PostgreSQL leads the competition in SQL compliance and usability.

Thirdly

Third, continuing with the thread on SQL, we see that PostgreSQL has added powerful tools to help us customize our queries. One of these tools is regular expression support. Regular expressions are basically just patterns of characters that describe a string, and are extremely useful in server management, file management, and any kind of search query. When I am searching for a file, or for a particular word in a file, I use regular expressions to narrow the search sufficiently enough to allow me to find what I am looking for with ease. For example, if I am looking for every file containing a single digit and nothing else, I would us the regular expression [0123456789] which matches any single digit. If I were to look for all of the text files on our server, I would use a regular expression such as, locate *.txt. (The * being the regular expression that stands for any occurrence of a file with ".txt" at the end of the filename.) As you can see, these are very powerful, and can be used in conjunction with any query on the PostgreSQL system.

Finally

In this article, we have looked at the PostgreSQL database and how it is truly an innovative relational database management system. It is rising above the competition, first, by supporting ACID, and using "all or nothing" transactions, it also supports SQL92 and almost all of it's constructs, and also allows us to customize our queries by using regular expressions. I have also pointed out that many large companies are using the PostgreSQL database in mission critical situations, and have been very pleased with the results. Even Tim Perdue, developer of Geocrawler.com and Sourceforge.net, states that he was "pleasantly surprised" at the robust nature of PostgreSQL v7.1 in his article, "Open Source Databases: As The Tables Turn", for phpbuilder.com , and says that he will be looking into PostgreSQL for other Websites that are going to be receiving huge amounts of traffic.

What does this mean for us here at UNT?

I think it means that we have a very good contender for an open-source back-end to the ColdFusion 5 server that we are going to upgrade to next year. I have ported many of the

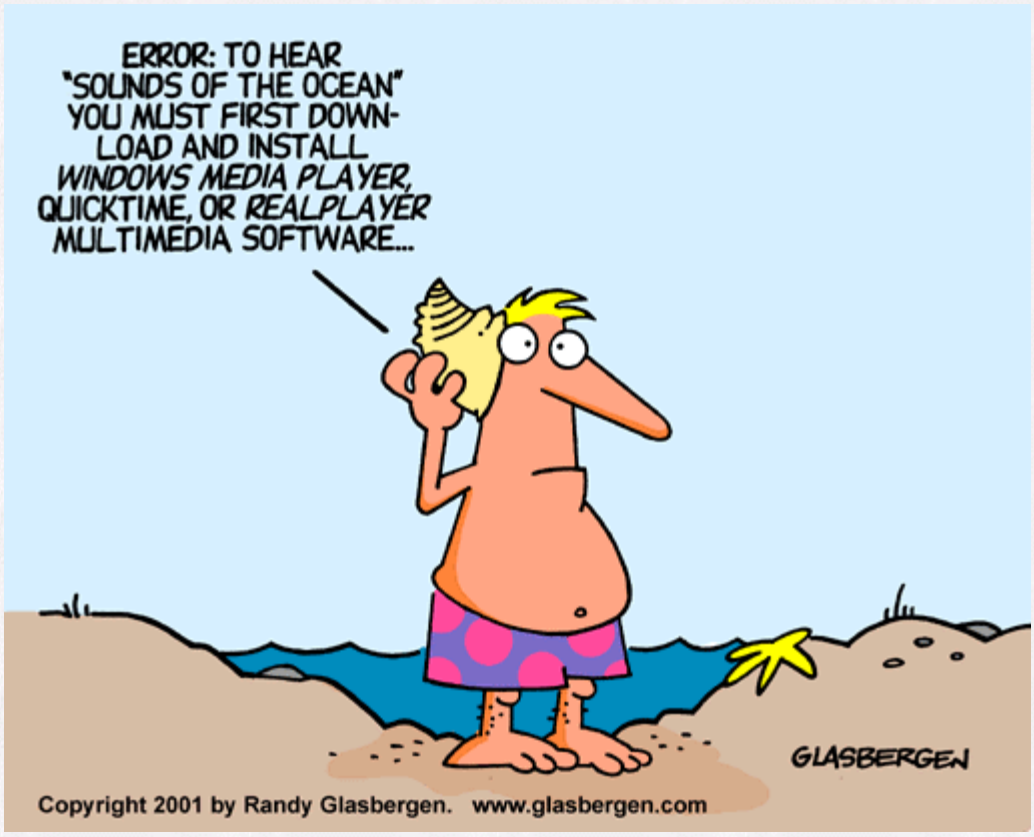
ColdFusion applications from our NT box to a server running PostgreSQL, and have found few problems that appear as a result of the porting process. It also means that we will have a much more stable and efficient back-end for you to manipulate and monitor data from. (One of the bonuses of using PostgreSQL, is the fact that you can use Microsoft Access as a front-end to the PostgreSQL back-end, meaning a relative easy adjustment for you. (I will write more about this in future articles.)) And finally, it means that we have the opportunity to use a powerful database server to provide your ColdFusion applications with the optimum performance and functionality possible.

If you have any more questions about PostgreSQL, or any other facet concerning the UNT ColdFusion server, you can contact me at: speevey@cc.admin.unt.edu

Links with more information about PostgreSQL

- http://www.phpbuilder.com/columns/tim20001112.php3?page=1
- http://www.geocities.com/mailsoftware42/db/
- http://www.postgresql.org
- http://www.pgsql.com
- http://www.devshed.com/Server_Side/PostgreSQL/Installing/

Today's Cartoon



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