THE OTT SPIDER: A YEAR ON THE WEB

Dr. Thomas M. Franz
Naval Air Warfare Center
Training Systems Division,
Orlando, Florida

Scott W. Dunlap
Naval Education & Training
Program Management Support Activity,
Pensacola, Florida

Abstract

Last November at I/ITSEC, the Office of Training Technology (OTT) unveiled the OTT SPIDER, Seamless Product Information, Data Exchange and Repository available on the World Wide Web (WWW). At that time, the WWW was still relatively new to the military, internet access was somewhat limited, and the whole idea of a WWW site as a "database" for training technology data and information was untested. Reaction to the OTT SPIDER was very positive, with military personnel, training developers, and commercial organizations all impressed with the potential of this resource, -- a resource available then and today to all I/ITSEC attendees. In this paper, the first year of the OTT SPIDER's evolution and use is documented, chronicling continued growth and an enthusiastic world-wide reception of this new and evolving Navy on-line resource.

Building from an initial repository of over 1,000 files of training technology data and information, today the OTT SPIDER hosts approximately 1,300 files of information, and provides hundreds of links to related military, government, and commercial WWW sites. The OTT SPIDER receives over 1,000 "hits" each business day, from places as far as Singapore, Turkey, and South Korea. The most frequent foreign users are from Canada and the United Kingdom, and the numbers of US military users have grown steadily this year. Details on who is using the OTT SPIDER, what information is most frequently accessed, lessons learned, trends, and future plans are also discussed.

The OTT SPIDER also hosts a number of interactive features including electronic conferences that enable military training providers to gain immediate advice and information from training developers in industry, government, and academia. The OTT SPIDER also features: a unique and robust search engine; a searchable and interactive on-line calendar; a forum for requesting information about off-the-shelf training products and services; a reference center, and links to industry, government, and academic web sites related to training technology. In this paper, the development of the OTT SPIDER will be chronicled and a status report provided on the OTT SPIDER through mid-June, 1996. This paper will also document lessons learned, and include a discussion of trends and future plans for the OTT SPIDER through the year 2001 including: new interfaces and on-line capabilities, and a virtual on-line repository for training program design and development, and training delivery via the internet.

THE AUTHORS

Dr. Thomas M. Franz is a Psychologist who has been with the Naval Air Warfare Center Training Systems Division since 1989. Dr. Franz was on the OTT SPIDER design team and continues to contribute to numerous technology areas on the OTT SPIDER. Dr. Franz can be contacted via electronic mail at: tom_franz@ntsc.navy.mil.

Mr. Scott Dunlap is an Operations Research Analyst at the Naval Education and Training Program Management Support Activity (NETPMSA) in Pensacola, FL. Mr. Dunlap, a former Economist, was the NAWCTSD Project Manager for the OTT Support Team during the design and development of the OTT SPIDER, and served in that capacity until accepting his current position at NETPMSA in October, 1995. He can be reached via electronic mail at: scott.dunlap@netpmsa.cnet.navy.mil.

The OTT SPIDER: A Year on the Web

THE OFFICE OF TRAINING TECHNOLOGY

In November of 1994, the Chief of Naval Education and Training (CNET (N5)) sponsored a meeting of thirty-eight (38) Navy organizations and offices to discuss improvements in the management of training technology issues and initiatives. Those in attendance agreed upon the need for a new office on the Chief of Naval Operations (CNO) staff to apply a consolidated and more focused approach to training technology issues and initiatives. Specifically, the objectives of the new office were to: nurture innovation, broker training technology data and information, stimulate the use of the latest training technologies through expanded access to current information and expertise, facilitate more cost-effective training technology investments, coordinate policy, guidance and standards, and to serve as an advocate of innovative training technology initiatives and programs.

The Office of Training Technology, CNO (N75) was formally established in January, 1995. CAPT Chris Addison, then Commanding Officer of the Naval Air Warfare Center, Training Systems Division (NAWCTSD) in Orlando, FL, was assigned to take the helm of the OTT and officially reported aboard as Director in July, 1995. Policy and guidance for the proposed office was completed in June of 1995, and published under OPNAV Instruction 3900.29, Navy Training Technology. Today the OTT has support personnel located in Orlando, FL, at NAWCTSD, in Pensacola, FL, at the Naval Education and Training Program Management Support Activity (NETPMSA), and in San Diego at the Navy Personnel Research and Development Center (NPRDC). Representatives from these organizations make up the OTT Support Team, working with the OTT staff in the Pentagon.

THE OTT SPIDER

During February, 1995, as members of the OTT Support Team were investigating methods to broker training technology data and information and expand access to current information and expertise, a series of internet searches were conducted on the words "training technology". The result "not found" was returned in every case. While the internet and World Wide Web were still relatively new, the potential for this medium to provide an unbound source for data and information was extraordinary.

Just eleven months after formal establishment of OTT, and less than nine months after that futile search for "training technology" on the World Wide Web, the OTT Seamless Product Information, Data Exchange and Repository (SPIDER) was unveiled at the 17th Interservice/Industry Training Systems and Education Conference (I/ITSEC) in Albuquerque, New Mexico.

A first of its kind on the internet, the OTT SPIDER offered a public resource that cataloged over 1,000 files of training technology data and information, and a host of interactive services and communications vehicles for training technology users and developers. Since that time the OTT SPIDER has more than doubled in the amount of training technology data and information available, and the OTT team has continued to modify and add other information and services to the web site. In this paper the OTT SPIDER web site, its usage, user feedback, lessons learned, general trends and future plans are presented. Figure 1 provides the layout for the OTT SPIDER home page.

Like all arachnids the OTT SPIDER has eight legs, or areas, of information: (1) **Classroom Automation and Instructor Support** (2) **Interactive Courseware** (3) **Modeling and Simulation** (4) **Remote Delivery of Training** (5) **Human Performance Technologies** (6) **Training Systems Design and Instructional Systems Development Technologies** (7) **Training Management Systems** and (8) **Other Training Technologies**. Each of these legs, or areas, further includes descriptions of the technologies, pros and cons, user and developer points of contact for each technology, anticipated future developments in each area, and references. Each area includes internal links to other pages on the OTT SPIDER file server, and external links to resources on other file servers around the world. As an example, someone interested in a given topic (such as virtual reality)

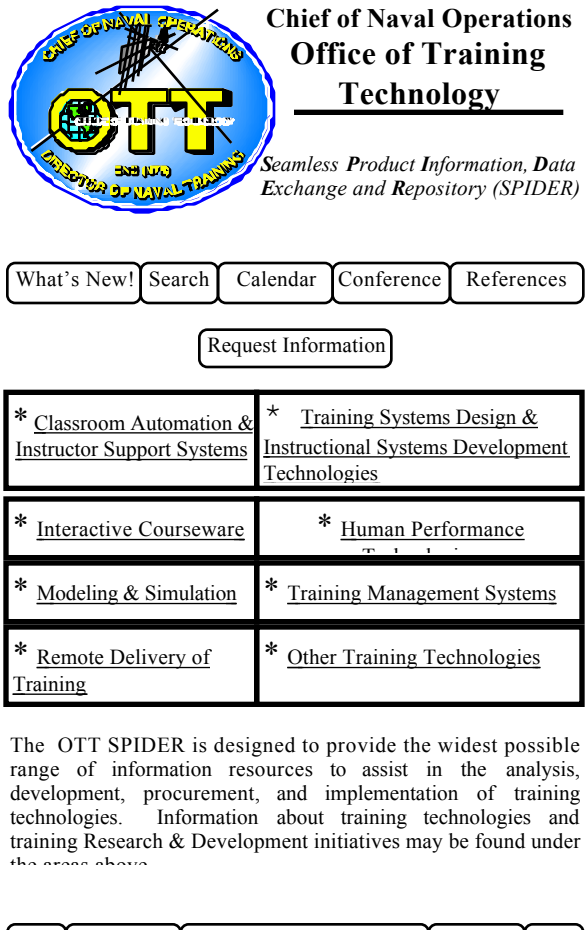

Figure 1. The OTT SPIDER Homepage
URL: http://www.sc.ist.ucf.edu/~OTT/.

would have an option to instantly jump to a related area (such as helmet-mounted displays) if so desired. Links to **other training technology sites** (see button Figure 1) are updated continuously; thus, users learn of activity in all branches of the DOD, other Government agencies, academic institutions, and other research laboratories around the globe.

One very useful tool on the OTT SPIDER is a robust **search** engine that can be configured to include simultaneous queries from a number of major internet search engines, or tailored to search file servers on specific domains or even specific sites. The OTT SPIDER also provides a **calendar** (see button in Figure 1) that includes industry trade shows (such as I/ITSEC) with dates, points of contact, and when available, links to on-line registration sites for the conference. Anyone can submit upcoming events for inclusion on the OTT SPIDER calendar, or conduct keyword searches for upcoming events already registered. The OTT SPIDER **request information** capability provides military users an opportunity to request information about specific types of products or training technologies, with responses provided by other interested users in commercial organizations, academic institutions or other government agencies. Those interested in the latest initiatives and specific technologies can initiate or join an electronic **conference** of their choice. Electronic conferences enable users to exchange data and information to help them stay current with the latest developments in their area of interest. For example, electronic conferences have been initiated for *Navy Instructional Systems Specialists* and for those interested in *Training Standards.*

LAUNCHING THE OTT SPIDER

From its inception, the strategy was to make the OTT SPIDER a publicly accessible resource, focused on the expertise and interaction of three major groups of users; (1) military, (2) industry, and (3) academia. The OTT position was that a publicly available knowledge base about training technology would be a key factor in expanding the use of training technology into other sectors of the economy and improving national productivity. By drawing on the training technology expertise and research in the military, industry, and academia, OTT SPIDER users would benefit from those who invest the most in training technology. Additionally, any expansion of the customer base for training technology would translate into lower unit costs for the military, and would also translate into higher worker productivity from better trained employees in all sectors of the economy.

Navy user accessibility to the internet and the level of "web literacy" for Navy users was an issue very early in the development of the OTT SPIDER. Around July, 1995, internet access was not widely available in the Navy or DOD for that matter. It was also not as inexpensive as it is today. To address that initial concern about how Navy users could get to the OTT SPIDER, the OTT installed an access server to get users on-line temporarily until they could secure services with an access provider. The subsequent proliferation of access providers and lower rates have rendered those early

concerns irrelevant and the OTT does not expect to continue to provide that service. To address the issue of "web literacy", the OTT team developed an OTT SPIDER User's Guide and OTT SPIDER brochures to help familiarize potential users with how to get on the internet and to provide an overview of the capabilities on the web site. Immediately after going on-line in November of 1995, the OTT SPIDER was registered with the major internet search engines and search indices.

To get the word out to military users, the OTT initiated a series of messages and informational briefings to many of the potential users of the resource including NAWCTSD, NETPMSA, the Chief of Naval Education and Training (CNET), Defense Systems Management College (DSMC), U.S. Naval Academy, and the warfare resource sponsors and systems commands in Washington D.C. Articles were published in Defense News, Defense Daily, Jane's Defense Weekly, and Navy News Clips. Professional conferences were also used to spread the word about the OTT SPIDER, with exhibits at: the 17th I/ITSEC in Albuquerque, NM; the International Training Equipment Conference (ITEC) at The Hague, Netherlands; the 13th International Conference on Technology and Education in New Orleans, LA; Interactivity '96' in Atlanta, GA; and the Sea, Air, and Space Technology Exposition in Washington DC. A balance of conferences was chosen to ensure that military, commercial, and academic users are all informed of the availability and purpose of the OTT SPIDER. As a result of these efforts, OTT SPIDER usage quickly reached an average of about 1,000 "hits" (files served up to users) per day.

OTT SPIDER USAGE

For the period covering 1 November, 1995 to 12 June, 1996 the OTT SPIDER had received over 123,000 hits on the file server. In this section, OTT SPIDER usage is described by type of organization, value to the Navy and DOD, and finally the growth of military users. In Figure 2, the total number of hits are illustrated for each of the first six months of OTT SPIDER operation.

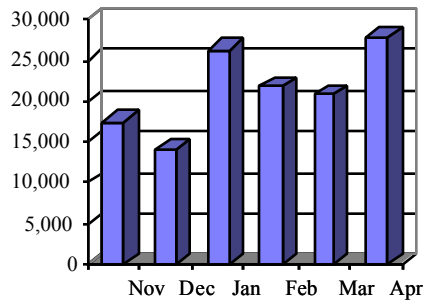

Figure 2. Monthly total hits during first six months of OTT SPIDER operation.

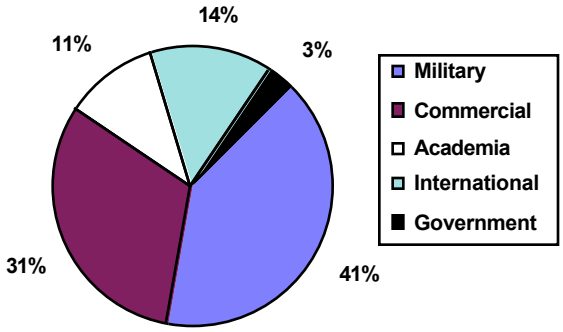

Figure 3. OTT SPIDER usage by user domain.

Figure 3 illustrates the breakdown of OTT SPIDER usage by user domain. The percentages in Figure 3 were derived using data that was received from an on-line survey, and data from the server access statistics. The major difference between the two sets of data were the omission of hits from the OTT SPIDER service center. These data were omitted to eliminate any distortions in the percentages that could result from those users involved in servicing the web site.

The number of commercial organizations using the OTT SPIDER grew from 180 in December to 496 organizations just four months later in April. The companies accessing the data included names like: Apple, Compaq, Digital, Disney, Ford Motor Company, Harris, Honeywell, Hughes, JC Penney, Microsoft, Rockwell, and Pfizer.

Educational institution use of the OTT SPIDER grew from 42 educational institutions using the site in December of 1995, to 347 in March of 1996.

The list of educational institutions literally includes schools with names beginning from the letters A to W (almost to Z). Some of the identified schools included: Berkeley, Colorado State, Clemson, Dartmouth, DePaul, Hawaii, MIT, Ohio State, NYU, Princeton, Purdue, Stanford, and USC.

Similar growth was seen among users in US government institutions. Seventeen organizations were using the site in December of 1995, and this number of government organizations doubled just four months later. Some of the government users included: Department of Energy, Department of Interior, National Aeronautics and Space Administration (NASA), the National Science Foundation, Oak Ridge National Laboratories, and the Federal Deposit Insurance Corporation (FDIC).

A typical month on the OTT SPIDER will include 43 foreign countries accessing the system. Canada and the United Kingdom are the most frequent foreign users of the OTT SPIDER; the Netherlands and Australia are the next most frequent foreign users. It is interesting to see users from places as remote as Thailand, Slovenia, and South Africa access the site to learn about the latest in training technologies (see Table 1).

The total number of US military installations using the OTT SPIDER roughly doubled from 53 in December of 1995 to 104 the following month. Since that time the total number of installations using the OTT SPIDER has remained fairly constant, with 102 listed in the May 1996 statistics. In Figure 4 the number of military domains hitting the OTT SPIDER by month for Air Force, Army and Navy installations is illustrated. Military users included individuals from: Air Force Headquarters, Brooks, Kelly, and Wright Patterson Air Force Bases; the Army's Dugway Proving Grounds, Fort Monroe, and Simulation, Training and Instrumentation Command (STRICOM); and Navy AIRLANT, China Lake, Naval Air Systems Command, Naval Research Labs, and many others. Note that relative use of the OTT SPIDER between defense departments has remained constant, with the Navy making significantly more use of the OTT SPIDER than the other departments.

Table 1. Domain Distribution for March

Domain	# Hits	% Hits
Military	4411	21.26
Commercial	3739	18.02
Education	3322	16.01
Network	1398	6.74
Government	414	2.00
Canada	290	1.40
United Kingdom	209	1.01
Organization	198	0.95
Netherlands	168	0.81
Australia	159	0.77
France	94	0.45
Germany	85	0.41
Finland	71	0.34
United States	64	0.31
Sweden	56	0.27
Singapore	51	0.25
South Korea	44	0.21
Norway	42	0.20
Japan	34	0.16
Israel	28	0.13
Spain	27	0.13
Mexico	27	0.13
Malaysia	27	0.13
New Zealand	22	0.11
Hong Kong	22	0.11
Indonesia	19	0.09
Brazil	14	0.07
South Africa	13	0.06
Greece	11	0.05
Poland	10	0.05
Italy	9	0.04
Ireland	9	0.04
Denmark	9	0.04
ARPA	9	0.04
Slovenia	8	0.04
Bulgaria	8	0.04
Switzerland	7	0.03
Costa Rica	6	0.03
Belgium	6	0.03
Gibraltar	5	0.02
Austria	5	0.02
Philippines	4	0.02
Egypt	4	0.02
Hungary	3	0.01
Thailand	1	0.00
Malta	1	0.00

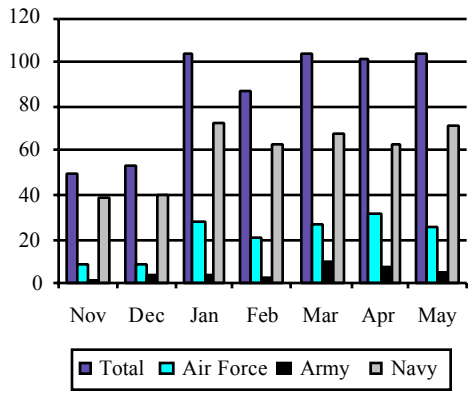

Figure 4. Number of military domains using the OTT SPIDER by month.

HOTTEST AREAS

What technology areas are accessed most often? A quick summary is provided in Table 2, with the top fifteen pages listed in order of "hit" frequency. The areas: Interactive Courseware, Modeling and Simulation and Virtual Reality have been in the top three fairly consistently. The use of **References** (see Figure 1 button) available on the OTT SPIDER has increased in popularity, as more standards, policies, directives, and specifications have been added.

Table 2. Top 15 Individual Pages (March)

Archive Section	# Hits	% Hits
Home Page	842	4.06
Interactive Courseware	586	2.82
Modeling & Simulation	571	2.75
Virtual Reality	233	1.12
Training Sys Design & ISD	233	1.12
Classroom Automation	184	0.89
Haptic (Sensory/Touch) Interfaces	169	0.81
What's New	145	0.70
Remote Delivery of Training	140	0.67
Human Performance Technologies	118	0.57
Intelligent Tutoring Systems (ITSs)	115	0.55
References (/~OTT/refs/index.htm)	113	0.54
Other Training Technology Sites	107	0.52
Instructor Controlled Multimedia	100	0.48
Task Analysis	98	0.47

The data in Table 2 assisted the OTT team in determining which areas warranted more attention from the perspective of updating and maintaining currency. At the other extreme, areas that received little use were examined and modified accordingly. For example, the button "**Request Information**" (see Figure 1) originally was labeled "Market Research." It became apparent that users did not intuitively know what was intended by "Market Research" as few requests for information were made. Therefore, the section was renamed to "Request Information" in addition to some modifications in the way requests are posted.

USER SURVEY

An on-line survey was conducted over the period from March 22, 1996 through April 22, 1996. The survey questions focused on major capabilities on the OTT SPIDER.

A total of 50 inputs were received over the 30 day period the survey was on-line. An estimated 2,972 individual users accessed the OTT SPIDER during the survey period. Therefore, the sample represented approximately two percent of the population of users during the survey period. A statistical test confirmed with 95 percent confidence that the user sample and the historical estimates were representative of the same user population.

The survey confirmed that most users found out about the OTT SPIDER from an internet search (the OTT SPIDER has been registered with all of the major internet search engines). The second most popular source for learning about the OTT SPIDER was word of mouth referrals. When asked if they found what they were looking for, 94% said they had. No one reported that the OTT SPIDER was ineffective, and half the respondents rated the OTT SPIDER as a very effective resource.

A large majority of the survey sample indicated that they were first time users. This was consistent with the finding that most of the users come to the OTT SPIDER via an internet search. Twenty-eight percent of the survey respondents reported visiting the site at least weekly. The preponderance of first time users was also evident as many indicated a lack of familiarity with the resources and capabilities of the OTT SPIDER. The technology areas reported as used most frequently by sample respondents were Interactive Courseware (44%), Training Systems Design and ISD (34%), Modeling and Simulation (32%), and Other Training Technologies (32%).

USER FEEDBACK

Many users responded to a "comment" block on the user survey to let us know what they thought of the site. The initial comments have been overwhelmingly positive. Other users sought additional assistance and information from the site: *"would like sample programs to try" "Need more information, policy, opinion, design strategies on the integration of IETMs and training..." "Is there a list of actual trainers and simulators" "The Services plans on Distance Learning" "Down-loadable version of MIL-STD-1379D" "user needs to help me, as a supplier, better spend my R&D efforts" "Actual Costs of implementing ICW level 1, level 2, and level 3" "CIITA"* (stands for Computer Improved Instructor's Training Aid), *"Need Costs of implementing VTT, Internet based training delivery, etc."*

VALUE OF THE OTT SPIDER

A very conservative analysis of the value to the Navy and DOD from the investment in the OTT SPIDER was conducted. "Value" was very narrowly defined as the value of time users saved searching for training technology data and information. The estimated value was computed using the estimated number of individual users, the time savings reported by users from an on-line survey, and a composite labor rate. The cost was based on the nonrecurring start-up costs to develop and field the OTT SPIDER.

The number of users was estimated first by deriving an average number of "hits" per user. This was accomplished by reviewing monthly usage statistics, eliminating sites known to include multiple users, and dividing the total number of "hits" by the total number of individual user domains. Using this method, the average number of "hits" per individual user on the site is nine. Next, the monthly total "hits" were extracted for Navy and Military domain users. Since many military OTT SPIDER users access the system from personal internet accounts and show up under non-military domains, this method of estimating users will understate the actual number. The monthly totals for Navy and Military user domains were then divided by the average of 9 "hits" per user to estimate the number of individual users accessing the OTT SPIDER. Those results are in Table 3.

Table 3. Estimates of individual Navy and Military OTT SPIDER users.

Month	Navy Users	Military Users
Nov	163	190
Dec	377	439
Jan '96	292	340
Feb	337	393
Mar	205	239
Apr	524	612
May	226	264
1-12 Jun	163	190

The next step in estimating the value of the OTT SPIDER was to determine the average research or data collection time savings for individual users. This was accomplished using a survey instrument that was placed on-line from the period covering 22 March, 1996 to 23 April, 1996. Navy users reported an average time savings of 10.5 hours for that month and all users reported an average of 8.2 hours saved for the month. To determine the value of these time savings, the estimated number of individual users were multiplied by 10.5 hours for Navy users and 8.2 hours for Military users. Since the Military users did include Navy users, the Military estimate was lower than it really should be because of using the lower average hourly savings. The estimated total number of hours saved were then multiplied by a composite hourly labor rate of $39/hr. This labor rate is based on equal proportions of military officers (0-4 assumed), enlisted personnel (E-7 assumed), and civilian personnel (GS-12 assumed) and a productive work year of 1,750 hours. Figure 5 shows that, using the methodology described, the OTT SPIDER's cost was recovered in less than one month for the Navy, and resulted in near immediate payback for all DOD.

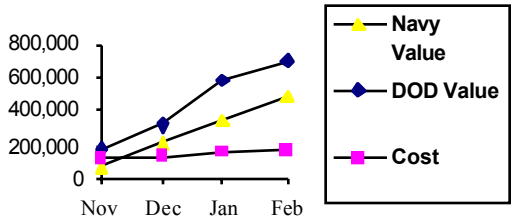

Figure 5. Return on the OTT SPIDER investment realized in less than one months time.

This method for estimating the value of the OTT SPIDER is very conservative since it excludes the value to industry, academia, and other users. It also does not account for the duplicate investments avoided, the impact on the training technology customer base, nor the impact of using improved technology in training programs on employee productivity.

LESSONS LEARNED

Since the OTT SPIDER was placed on-line, there have been numerous reports of what is "good" or "bad" in a web site. The feedback that has been received from the OTT SPIDER says that it was "good", but there is always room for improvement. The following are the ten key lessons learned from the OTT SPIDER's first year on the web.

- **Define the requirement you are trying to meet with the web site**. The OTT team spent almost three months in an intensive effort to develop a requirements document for the web site. This document proved to be very useful as the site and its capabilities were designed.
- **Three "clicks" and you're out**. If your users don't get the answers needed in three clicks of the mouse, they will not likely return.
- **Register the site with the major internet search engines**. Sixty percent of OTT SPIDER users find the resource via an internet search. If a web site is not registered, many potential users will not be able to find it.
- **Minimize the use of big, useless graphics**. With the state-of-the-art as it is today, you are guaranteed to lose a lot of users with large graphics that add nothing of value to web site. The general rule for the OTT SPIDER was to keep graphics under 15K each, and minimize the use of graphics altogether.
- **The title of your web site needs to begin with a letter very close to the front of the alphabet, preferably with the letter "A".** This is due to the way internet search engines usually return data -- in alphabetical order. This is changing to more context oriented search engine returns, but generally, the closer to "A" in the beginning of the title, the better. If a user doesn't see the right context in 20 or less sites returned, they usually quit looking.
- **When using forms and Common Gateway Interface (CGI) scripts to collect information, ensure that the form has a validation process to verify that all required fields are filled in**. The lack of a validation process in the script can allow incomplete information to be passed.
- **Electronic conferences are slow to take off.** They need an advocate. Otherwise, subscribers may not see any traffic for a month and lose interest. Have an active advocate to guide, prod, or otherwise incite dialogue.
- **To be in the "knowledge base" business takes a significant investment in human resources to maintain a viable resource**. You will need a help desk function capable at the system and subject level, server administration, research analysts to continuously monitor the state-of-the-art, a number of people capable of writing, editing, and formatting in the Hypertext Markup Language (HTML), and programmers who understand CGI, Practical Extraction Reporting Language (PERL), C++ or other appropriate language.
- **When doing live demonstrations on the internet be prepared for anything (and have a hard disk or CD-ROM back-up of your web site).** The OTT team experienced some strange and downright bizarre complications with internet connections during the early phases of OTT SPIDER development.
- **A search capability is a must for the host server when a web site is designed for dissemination of information.** The OTT SPIDER search engine not only meets that requirement but also was designed to aid in researching training technology data and information outside the site. The OTT SPIDER searches can tailored by the user to ensure their returns are only from specific domains of interest, or through search engines that they prefer to use.

TRENDS

Intranets are the brightest spot in the near future for training technology. The Internet taught us all a good lesson in what is possible using commercial-off-the-shelf hardware and software to distribute and manage electronic media via the web. Intranets are simply smaller, limited access networks that offer

the same functionality of the internet at much higher speeds. Today it is possible to deliver multimedia (text, graphics, animation, sound, video) through a common web browser interface over a local area network. As server capabilities, video and audio streaming, and network architectures continue to improve, interactive courseware (ICW) over the network will be as routine as stand alone (CD-ROM) ICW applications are today.

The other trend that is revolutionizing information management is commonly referred to as "information warehousing", "knowledge systems", "knowledge bases" and the like. The OTT SPIDER made its mark on the web as a "knowledge base" that existed for no other purpose than to convey a body of training technology knowledge and to ensure that it continued to grow. Since 1 November, 1995, we've seen an explosion of "context rich" web sites on any number of subjects, and industry has now begun to reengineer information management to minimize costly development efforts and take advantage of the internet and intranets using COTS hardware and software.

FUTURE PLANS

While the general theme and content of the OTT SPIDER are expected to remain in the same context, you can count on an occasional facelift for the OTT SPIDER. The home page will be redesigned to provide a better, more intuitive interface. The OTT team is currently investigating alternative interface options including clickable image maps and frames. If we implement an interface that relies on more of the HTML 3 standard capabilities and Netscape™ unique extensions, we will keep a back-up site for those users still using browsers that only support the HTML 2 standard. Expect to see a "software download" button on the OTT SPIDER to point users to downloadable resources that are available from other sources.

The domain name for the OTT SPIDER may eventually be revised to more closely represent the site name. The OTT currently has the ott.navy.mil domain name registered on a military network, but has made a decision to leave the server where it is for now at the University of Central Florida's Institute for Simulation and Training in Orlando.

There will be continued effort to update and revise the information and links provided by the OTT SPIDER. A glossary of terms, an improved standards section, better presentation of directives, policy, and guidance are all in the works. The OTT will continue to conduct periodic on-line surveys to ensure that the OTT SPIDER is still doing the job it was designed for. Based on an earlier survey, the search engine on the OTT SPIDER will be redesigned to improve both the query interface and method for returning data.

SUMMARY

The OTT SPIDER's first year on the web has been characterized by growth, rapid change, and most importantly, satisfied users. OTT SPIDER users interact with the OTT team almost daily, and the two-way flow of information is improving every month. While the OTT SPIDER has greatly expanded the training technology knowledge base and influenced many training programs, it is just a beginning on a continuous journey to fulfill a critical part of the OTT mission -- to serve as a broker for training technology data and information, and to stimulate the use of the latest training technologies through expanded access to current information and expertise.

The OTT SPIDER is cost effective. Even when using conservative measures of value, the initial investment in the OTT SPIDER was recovered in less than one month to DOD and the Navy. Use of the site is steadily growing among, military, commercial, academic and other US government institutions. We welcome your comments and suggestions, and invite you to visit the OTT SPIDER on the world wide web (http://www.sc.ist.ucf.edu/~OTT/. Be sure to stop by our booth in the Exhibit Hall and attend our OTT SPIDER Demonstration Special Event.