

**THE STRATEGIST AND THE WEB:
GUIDE TO INTERNET RESOURCES**

**James Kievit
and
Steven Metz**

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FOREWORD

Every day, more is heard about the importance of being part of the "global information revolution" and, every day, more information seems to become available via the "information superhighway." Indeed, one major lane of that highway--the Internet--now offers access to millions of documents and files on a vast range of topics, and the number continuously increases. Unfortunately, however, there are few guideposts for anyone attempting to travel the highway. "Surfing"--otherwise known as trial and error--seems, as yet, to be the most common approach to using the 'net. While perhaps acceptable for casual or recreational use, this technique is ill-suited for analysts or military professionals seeking to develop strategy or to provide policy advice. For them, the ability to rapidly locate salient information, and to know its validity, is crucial.

In this essay, Lieutenant Colonel James Kievit and Dr. Steven Metz begin the effort to construct guideposts for strategists to follow. They provide basic information explaining the most important features of the Internet, and a critical review of more than a hundred of the electronic sites most likely to be of interest to research analysts or military planners. While the authors conclude that the Internet today "is not a solution to the analyst's need for relevant, timely information," they argue that individuals and organizations must prepare themselves now for the day in the not-so-distant future when "an analyst's collection of Internet 'bookmarks' will be nearly as valuable as a rolodex of personal contacts is now."

The Strategic Studies Institute provides this essay as a contribution to Army and other strategists who are addressing the challenges of the "Information Age."

RICHARD H. WITHERSPOON
Colonel, U.S. Army
Director, Strategic Studies Institute

ABOUT THE AUTHORS

LIEUTENANT COLONEL JAMES KIEVIT is a strategic research analyst at the U.S. Army War College Strategic Studies Institute (SSI). A Corps of Engineers officer, he has served on the faculty of the U.S. Military Academy, and in a number of troop and staff assignments. LTC Kievit designed the SSI Internet home page. He can be contacted at (717) 245-4140, FAX 245-3820, e-mail kievitj@carlisle-emh2.army.mil. His mailing address is:

Strategic Studies Institute
U.S. Army War College
Carlisle Barracks, PA 17013-5050

DR. STEVEN METZ is the Henry L. Stimson Professor of Military Studies at the U.S. Army War College and an analyst at the Strategic Studies Institute. He has also served on the faculty of the Air War College, the U.S. Army Command and General Staff College, and several universities, and is the author of more than fifty articles and monographs on world politics and national security affairs. He can be contacted at (717) 245-3822, FAX 245-3820, e-mail metzs@carlisle-emh2.army.mil or stevenmetz@aol.com. His mailing address is:

Strategic Studies Institute
U.S. Army War College
Carlisle Barracks, PA 17013-5050

LTC Kievit and Dr. Metz have collaborated on five SSI studies dealing with the revolution in military affairs and future warfare. They have also co-authored articles for *Joint Force Quarterly* and *Special Warfare*, as well as a version of this study entitled "The Internet Strategist" for *Parameters*.

SUMMARY

For strategic analysts, the ability to collect information rapidly and to evaluate its relevance and validity is a crucial skill. By allowing the nearly instantaneous transfer of information, computers are now helping to assure it is timely. The Internet offers access to millions of documents and files on a vast range of topics. But to make maximum use of it, researchers must understand its strengths and weaknesses. Analysts trained in library, archive, and word-of-mouth research must learn where to look for salient electronic information.

The Strategist and the Web provides an Internet "Primer"--an introductory road map of the 'net explaining its most important features: the World-Wide Web, news groups, and electronic mail ("e-mail"). Then it examines numerous Internet sources. From these it identifies both sites of *current* value to a strategic analyst, and those with the *potential* to become important resources after further development.

Although sometimes valuable, the Internet today is not a solution to the analyst's need for relevant, timely information. New resources and methods appear and others fade away on a daily basis. Within a few years, though, presence on the web is likely to stabilize somewhat. Once that happens, an analyst's collection of Internet "bookmarks" will be nearly as valuable as a rolodex of personal contacts is now. The astute analyst will prepare for this. By exploring the web today and developing effective methods for finding and using electronic information, he or she will be ready when the Internet finally does make the leap from luxury to necessity.

To help make this exploration easier, Appendix A provides the URLs (electronic addresses) for all the sites reviewed in the essay. Alternatively, look for SSI's "Strategic Hotlist" on the Strategic Outreach Program page at: <http://carlisle-www.army.mil/usassi/ssioutp/>.

THE STRATEGIST AND THE WEB: A GUIDE TO INTERNET RESOURCES

Introduction.

Information has always been the lifeblood of strategic analysis. Once it was difficult to acquire enough information to assess the security environment, monitor changing events (especially those far from the major media centers), and draw reasonable conclusions. Today, technology has changed things--analysts now have access to a virtual torrent of information. But while the quantity of information is no longer a problem, assuring its timeliness and quality can be. For strategic analysts, the ability to collect information rapidly and to evaluate its relevance and validity is now a crucial skill.

To a large extent, the computer has become the tool of choice for strategic research. By allowing the nearly instantaneous transfer of information, computers certainly help assure it is timely. But computer-based research has its own set of problems. Analysts trained in library, archive, and word-of-mouth research must learn where to look for salient electronic information. The Internet offers a partial solution to this problem. Through it, nearly everyone with a microcomputer and a modem can easily access millions of documents and files on a vast range of topics. But the Internet is not a panacea for the problems of strategic analysis. To make maximum use of it, researchers must understand its strengths and weaknesses.

An Internet Primer.

The Internet is a network of millions of linked computers around the world. These can range from the simplest PC to supercomputers owned by universities and governments. The Internet is not centrally managed or controlled. No one establishes rules for the type of material it contains. Anyone with a computer and some relatively simple software can establish a "site" containing information that other Internet users can examine, download, or print. A few sites are "pay for use" or require a password, but the vast majority are open. This anarchy and fluidity leads to great variation in the quality of information on the Internet. It ranges from the useless and the banal to the indispensable and the astute. It takes some skill to quickly distinguish the two, particularly since many of the most visually appealing and interesting sites are intellectually shallow while some of the most important sources of information are, to put it bluntly, rather boring to look at. At the present time, style has won out over substance--the Internet contains many glossy magazines and slick brochures, but only a few weighty tomes.

In addition, the Internet is an extraordinarily fluid medium, literally changing by the minute. New sites appear at a breathtaking rate--one of the major on-line Internet catalogs receives 22,000 new listings every day. At the same time, many sites go away. Because it only takes a few minutes at a computer to change a site, they change regularly. This means that mastery of Internet information is extremely perishable. A researcher away for a few months will find a massive amount of new information during his next visit, but may also

find that older data is no longer available. The Internet is less like a library where the holdings remain relatively constant than a public bulletin board whose information has a brief lifespan.

On top of the vast amount of new material entering the Internet, its structure and essence are also changing. The Internet was initially built by governments and universities as a research tool to allow the rapid exchange of data among scientists. Today, most of its phenomenal expansion is fueled by commercial firms selling on-line access or marketing goods and services. Advertising and "pay for use" sites have appeared. The look of the Internet has also changed dramatically. Text-only "gopher" sites are being replaced by graphics-laden and sometimes beautiful "web pages." (Many of the terms used in this essay can be found in the glossary at Appendix B.) This transformation will continue for some time. The Internet of the year 2000 will be as different from the Internet of 1996 as Disney World is from a scientific conference. This is a mixed blessing. More of value is available on the Internet every day, but there are also more distractions to wade through while getting to it.

Three features of the Internet are most relevant for strategic analysts: the World Wide Web, news groups, and electronic mail ("e-mail"). E-mail is simply a means of interpersonal communication that falls somewhere between the immediacy of a phone conversation and the more thoughtful but slower exchange of ideas previously done by writing letters and memos. The specifics of using it vary greatly according to the mail software being used. News groups are collections of individuals interested in a particular topic who post messages, questions, problems, or issues on the Internet and reply to those left by others. The messages can be stored at an Internet site that participants access using web browser software like Netscape, or they can be distributed by e-mail. News groups are, in effect, electronic discussions and debates. While there are thousands of them dealing with every conceivable topic, most of those focusing on strategic, political, and military issues are relatively unsophisticated, making them of limited value for serious research. There is great potential, though, for limited-access news groups restricted to true experts. This is probably one wave of the future.

The World Wide Web (also known simply as "the web"), which is based on "home pages" combining text, graphics, links to related sites, and, increasingly, audio and video, has become the most popular and rapidly-expanding element of the Internet. In a sense, the World Wide Web is the Internet's library and can be a powerful source of timely information. But there are no librarians monitoring either the categories or the quality of information available. More than any other part of the Internet, the web requires researchers to develop effective, personalized techniques for rapidly finding appropriate data and assessing its quality. This is not an easy task for busy national security specialists and strategic analysts. To guide the way, the rest of this essay will offer an introductory road map of the web, suggesting sites of current value and noting others with the potential to become important resources.

Catalogs and Search Engines.

Since one of the major challenges for users of the web is locating appropriate material, many of the most useful sites do not provide actual data but instead offer ways to find and connect to other sites. These are the Internet's catalogs. Their most valuable resource are collections of "links." Links are special text (usually colored differently from the rest of the text and underlined) or pictures which automatically transfer the user to another Internet site when they are clicked on using a mouse. For instance, while connected to computers in Switzerland or Australia, clicking on a link to the Strategic Studies Institute will temporarily disconnect the user from the overseas computer and connect him to the one at Carlisle Barracks, Pennsylvania, where the Strategic Studies Institute home page is kept.

The most extensive and powerful catalog is *Yahoo*, which began as the project of computer scientists at Stanford University but is now a commercial firm. This change means that *Yahoo* has added a few fairly innocuous advertisements, but presumably the financial backing will help assure that the catalog remains well-maintained. *Yahoo* provides a brief description of and electronic link to thousands of Internet sites on every conceivable topic, including many political, economic, and military ones. It also offers links to news groups and has recently added the Reuters newswire. *EiNet Galaxy* is an equally slick and powerful general gateway. (The names of specific internet sites are in italics. The electronic addresses (or URLs) used to access the sites discussed are listed in Appendix A.)

While *Yahoo* has its own search tool, some of the dedicated Internet search engines are even more powerful and flexible. Most will scour the web using parameters provided by the user and then provide a list of "hits" that meet the conditions. The user can access the hits by clicking on them in the report provided by the search engines. *InfoSeek* is a good example and offers an excellent means for finding web sites and news groups. It offers limited (but still valuable) access for free, but a subscription is inexpensive and includes many useful features such as the ability to construct a personal newswire. *WebCrawler*, *Inktomi*, *Magellan*, *Excite*, *Alta Vista*, *Open Text*, and *Lycos* provide similar functions. Increasingly, "meta search" services like *Starting Point* can be used to connect to all the major search engines, thus making it unnecessary to access each one individually. Some other sites such as the *Internet Sleuth* search on-line databases.

Many of the catalogs including *Yahoo* provide a list of new Internet sites. The *Net Scout Services* offers even better ways to do this. It includes a weekly newsletter called the *Scout Report* that summarizes new Internet resources, and a service called *Net Happenings* that lists about 30 new sites each day. Both of these can be accessed directly over the web, or received by e-mail. Information on e-mail subscriptions is available at the web sites. *Netsurfer Digest* is a similar weekly compilation of new sites delivered by e-mail. *Internet Resources Newsletter* is not distributed by e-mail and must be accessed at its web site, but it provides a wealth of information for serious researchers rather than those seeking mostly entertainment on the Internet. This means that substance counts more than glitz. It is a

British site, so British resources dominate the listings, but those from many other countries are also listed and assessed. Some other Internet sites such as *USA Today* and *Cable News Network* provide short lists of new sites, but their focus is more on home pages that are entertaining or popular than on those that provide research resources.

U.S. Department of Defense Sites.

Department of Defense organizations are extensively represented on the Internet, which is not surprising since it began partly as a component of the government's "survivable communications system" initiative. But despite the numbers and logical structures of most Department of Defense web sites, they tend to be simply electronic brochures offering a basic description of the organization, its mission, and location that offer no usable information for researchers. Examples include *TRADOC* (the U.S. Army Training and Doctrine Command), the *Defense Intelligence Agency*, and *U.S. Military Academy*. Only a few Department of Defense sites offer research material on national security strategy, policy, or military strategy.

DefenseLink is an entry point to Internet sites operated by the Office of the Secretary of Defense, the armed services, and related defense agencies. More importantly, *DefenseLink* provides a means to search and download Department of Defense directives, obtain transcripts of important speeches, and connect to other sites dealing with specific military operations (for example, *BosniaLink*). And, via *DefenseLink Locator*, it provides a rudimentary but usable data base of other defense information sources. *DefenseLink* is hindered by the absence of a directory of key personnel in the Office of the Secretary of Defense, but does have the potential to grow into a key resource. Two related sites, the *Joint Chiefs of Staff* and the *Unified Commands*, are not particularly useful, only providing biographical information and fact sheets on their organizations.

Each of the military services has a centralized directory of its Internet sites. *ArmyLink*, as its name suggests, is a catalog or "hotlist" of the more than 280 Army home pages. Most of these are of little interest to a strategic analyst. The sites are indexed alphabetically and by subject area; there is currently only one entry listed under "strategic planning." *AirForceLink* provides a searchable index to over 170 Air Force sites. Again, few of these offer information for strategic research. Some include a list of contacts and a few offer e-mail addresses. *NavyOnLine* provides links to more than 80 other Navy organizations. It is possible to look at recent Navy press releases on-line but, short of manipulating the page's computer source code, an entire document must be printed to obtain any part of it. Entering "strategy" into the *NavyOnLine* search index resulted in only one "hit," and this was the long-range plan for the development of the Naval Undersea Warfare Center. Finally, the *U.S. Marine Corps* home page offers a great deal of public relations material and one important "concepts and issues" document. Be aware; this document is not particularly "user friendly."

The *Defense Technical Information Web* is an alternative starting point for Department of Defense Internet sources and has a useful link

locator page. The *Army Knowledge Network*, intended eventually to be a conduit of all Army electronic information, thus far merely provides identification of those developing the structure. One of its subordinates, the *Automated Historical Archives System*, "develops, maintains, and distributes on-line the Army's electronic, multimedia archives for post-Vietnam contingencies operations and the peacetime preparation for war and planning for the future." This would appear to be an ideal source for the strategic analyst. Unfortunately, it currently includes very little information. At that, it is better than the *Battle Labs* site which was last updated in April 1995, contains a "we're working on this database" message dated November 1994, and at present simply provides statistics on the number of individuals who have accessed it.

The *Marshall Center*, which is the Internet site of the United States European Command's George C. Marshall Center for Security Studies, is a state-of-the-art page that is well-organized and provides useful information about Center staff. It also offers on-line access to some publications, documents, and conference reports dealing with European security. The Army's *Foreign Military Studies Office*, which is charged with assessing regional military and security issues through open source media and direct contact with foreign military and security specialists, provides on-line access to its publications on geostrategic issues and military operations other than war, including a few translations of foreign publications. The *Army Research Laboratory* site has one worthwhile document, a "Strategic Plan" which outlines the Army's near-, mid-, and far-term technology goals. The page, however, contains lots of graphic "buttons," which makes it very slow to load. And tapping its "phone book" link resulted only in "file not found" responses. The *Center For Army Lessons Learned* furnishes an index to some Army branch publications. These, while of only limited interest to the strategist, might be valuable for those more interested in the operational or tactical levels of combat.

Though its name might not initially attract a strategic researcher's attention, *Force XXI* deserves a visit. It includes a searchable version of *FM 525-5: Force XXI Operations*, the Army's "conceptual foundations of War and Operations Other Than War in the early decades of the 21st Century." The search engine returned 19 hits on "strategy." The site also includes a *Campaign Plan* for revising the Army's structure; *Commander's Conference* pages providing current and projected budget, personnel, and logistic information; and on-line access to numerous *Articles* relating to the future operational environment and changing the Army. And, although showy, the *Force XXI* pages seem well designed and for the most part relatively quick to load.

Finally, one might expect the Internet sites of the high-level military colleges--the Department of Defense's academics--to prove more useful for research. This is not entirely true. The *National Defense University* (NDU) does provide a well-organized link page to its affiliated colleges and organizations. It is, though, a classic case of an Internet site whose developers were seduced by the temptation of elaborate graphics. These do not augment the value of the site, but make it excruciatingly slow to load. This tendency to

add glitz at the expense of usability is a recurring one on the Internet, especially in sites designed by commercial firms. The home pages of NDU's subordinate colleges and organizations vary in quality. The only items of use to researchers on the *Armed Forces Staff College* site are bibliographic listings from its library links. The rest is the sort of descriptive information on courses and departments found in any college catalog. Neither the *National War College* nor the *Armed Forces Staff College* provides a faculty directory. The *Industrial College of the Armed Forces* site does have such a directory, including e-mail addresses, although it is organized strictly alphabetically, with position titles but no real indication of the member's specific area(s) of expertise. It eventually intends to provide access on-line to publications since links are already included but are "under construction." The most valuable link from the *National Defense University* is to its *Institute for National Strategic Studies*. This well-organized page includes a searchable index (which provided 21 finds related to "roles and missions"), the ability to view the full text of published studies on-line, conference and symposia information, and a staff directory including biographical data and contact phone numbers. Just about its only drawback is the failure to provide staff e-mail addresses.

While its graphics make it slow to load, *Air University* is a major innovator in at least one area: it provides an interactive opportunity, via its link to 2025, to explore and share ideas on air and space capabilities for the future. Any individual can participate in this Air Force study by submitting thoughts on the entry forms provided. *Air University* is also valuable for its book and publications listings of airpower-related material. One shortcoming is that currently the listings provide summary and bibliographic information only; there is no capability to obtain full text on-line although hard copy ordering information is supplied. There is also both an author and title index to recent airpower publications. *Air University* also links to *Air Chronicles*. The graphics makes this slow to load but it does provide access via its "Contributor's Corner" to essays and articles including some with strategic relevance. The more recent, however, cannot be viewed with a normal browser but only with "Adobe Reader" software--which *Air Chronicles* provides via a downlink if you have sufficient free disk space. The files of other articles are very large, up to 1MB, so be prepared to wait for them to load. *Air Chronicles* also links to *Airpower Journal*. At this site, some recent articles and short essays can be viewed on-line and all can be downloaded.

Although expansion is underway, the existing Internet site of the *U.S. Army War College* is limited. Its *Center for Strategic Leadership* and *Peacekeeping Institute* home pages, while well laid out, only provide organizational, biographical, and contact information. Its *Military History Institute* offers several photographic archives and some bibliographic material, but unfortunately there is not yet on-line access to even a small portion of the Institute's holdings. The *Strategic Studies Institute* does offer some research material. Modeled on the *Institute for National Strategic Studies* site, the *Strategic Studies Institute* site has the usual organizational material and publications catalog, but also provides full text of many of its

analytical studies, conference and symposia information, a staff directory with biographical data, phone numbers, and e-mail addresses, and a collection of links to other Internet sites of value for strategic research. Its major shortcoming is lack of a searchable index to its publications.

As yet, the U.S. Naval War College has no presence on the net. The *Naval Postgraduate School* does have a site, but its focus is on the technological aspects of operations research and systems analysis. The school's Department of National Security Affairs is listed, but cannot be accessed. And the *Naval Postgraduate School* site suffers from the all-to-common lack of a faculty e-mail directory.

Other U.S. Government Information Sources.

Many Executive branch agencies have established World Wide Web home pages with basic, brochure-level information about their organization and function, but, as with the Department of Defense, few of these can serve as a resource for analysts or researchers. The *National Security Agency* and *Advanced Research Projects Agency (ARPA)* are examples (although the ARPA site does offer some press releases and testimony). Similarly, the *National Technical Information Service* site is a catalog of the agency's vast holding of scientific, technical, and business-related information, but little of it can be read on-line, downloaded, or printed. If it could, researchers would gain greatly. The *White House* site is one of the most popular on the World Wide Web. It is glitzy and fun, but offers no material of value to strategic analysts.

A few other Executive branch sites do include important research material. The *World News Connection* provides news stories from around the world. It is particularly crucial for regionalists dealing with regions overlooked by the mainstream media. Essentially it is an on-line version of the Foreign Broadcast Information Service (FBIS) reports. The down side is that users--even government ones--must pay for the service. However, the subscriptions are flexible, offering both short-time access for researchers involved in a single project and longer terms for individuals or organizations with a recurring need. The *Voice of America* site is especially frustrating. It is a potential goldmine, but its developers cannot seem to make the site work correctly. For a long time, it was a gopher site with broadcasts categorized only by date rather than topic and without a search engine. This meant that users had to know precisely what they were looking for in advance. Recently, *Voice of America* transferred to a web site with a search engine. This seemed to be a tremendous step forward, but at the time this essay was written, none of the links to "hits" found by the search engine worked. And, since the "hit" list did not provide broadcast dates, it was impossible to find any information.

The *Department of State* is, likewise, a frustrating location on the web. For a strategic analyst dealing with U.S. foreign policy, this site, which provides foreign policy news, speeches, statements, and reports, could be an extraordinarily useful tool for keeping abreast of official policy. But while it has been improved recently by

the introduction of a web home page and a search engine, it remains awkward to use and difficult to access. To get a hard copy of a one page story from the *Department of State Dispatch*, for instance, users must print the whole document which sometimes runs over 50 pages. The *Library of Congress* web page also combines tremendous potential and serious shortcomings. It may eventually be the premier site on the Internet for researchers, but now offers mostly basic information about the Library, a few links to other sites, and searchable catalogs. Once an analyst finds a citation from the catalogs, he or she must then go to a library to retrieve the material rather than having on-line access to it.

The United States Congress has both good and mediocre Internet sites. The *Senate Armed Services Committee* and the *House National Security Committee* sites simply list members and provide contact information. The *Congressional E-mail Directory* is a good, searchable resource. The general U.S. Congress site--named "*Thomas*" after President Jefferson--is one of the most important pages on the Internet for Americans interested in political affairs. It provides the full text of legislation, a searchable transcript of the Congressional Record, bill summaries and status reports, information on hot legislation organized by topic, a copy of the U.S. Constitution, and a useful primer on the lawmaking process. It also includes links to other congressional sources, including senators and representatives with e-mail or home pages. With improvements in its search engine, Thomas could move from a very, very good site to a truly superb one. In addition, *GPO Access* is an extremely well-designed site providing a powerful search tool for legislation and other congressional documents. Public access to these documents is either from a Federal Depository Library or directly from the Government Printing Office. *CapWeb* is another source of congressional information, but is not affiliated with the government.

Think Tanks and Professional Journals.

There are several gateways dealing specifically with think tanks and research organizations focusing on world politics and security policy. *International Security Network* and *IANWeb* are good examples. In fact, the Swiss-based *International Security Network* is currently the single most useful site on the World Wide Web for national security analysts and researchers. Its hotlist of think tanks, universities, government organizations, and news groups is as exhaustive as possible in such a fluid medium. It also provides a wealth of other information on the structure and lexicon of the Internet and a few documents that can be downloaded. The *Electronic Headquarters for the Acquisition of War Knowledge* (EHAWK) is an excellent gateway to Internet locations dealing with military history and news. It also includes links to military-oriented news groups and e-mail discussion groups. *Bombs and Bullets* is a more limited attempt to do the same. Unlike EHAWK, this page needs renovation as many of its links are invalid. *SACIS* is a truly outstanding site with links to the United Nations, various U.N. agencies, a range of other international organizations, data bases of international law documents, and a few other international affairs pages. It, along with the *United Nations Scholars' Workstation*, offers better ways to access

United Nations' material than the U.N.'s own home page. Some useful links are also found in the *Stanford Center for International Security and Arms Control*.

Another type of gateway is found in the *American Universities* and the *Colleges and Universities* sites. These provide links to many universities around the world. Most of these, in turn, have faculty e-mail directories which a researcher can use to contact experts in the field he or she is analyzing. The university home pages vary greatly in quality. Some, like Columbia University, make it easy to identify faculty experts in specific fields and send them e-mail. Others, like the University of California at Berkeley, are difficult or impossible to use, either failing to list faculty expertise and e-mail addresses, or requiring the user to go to two or three separate sections of the site to locate and contact experts.

As should be expected, many major think tanks and organizations dealing with security and military issues approach the Internet as a marketing device rather than a research resource. Their sites are primarily on-line catalogs offering a basic description of the organization and information on ordering and purchasing their products. An example is the *International Institute for Strategic Studies* (IISS), publisher of vital documents like *The Military Balance*, *Strategic Survey*, *Survival*, and the *Adelphi Papers*. Similar sites are the *Center for Strategic and International Studies* (CSIS), *Jane's Information Store*, *Stockholm International Peace Research Institute* (SIPRI), and *Association of the United States Army*. A few others such as *RAND*, *Brookings Institution*, *Stimson Center*, and the *Hoover Institution on War, Revolution, and Peace* offer a little more, including detailed information on their research programs and some archives. The *RAND* page also offers a basic information sheet on the *Arroyo Center*, its Army research division, and some other elements like the *Center for Asia-Pacific Policy*. The site does make it difficult to contact specific researchers. Unless users know who they are looking for from the start, they must wade through the *RAND* pages to find the name of a specific researcher, and then go back to the beginning to search an e-mail directory. More advanced Internet pages provide a direct mail link from their directory of experts. In this regard, the *Brookings* site is even worse: it fails to provide an e-mail directory for its analysts (or even a phone listing).

In contrast to sites like CSIS, *RAND*, and IISS that require Internet users to order their publications using e-mail or other means, some university-affiliated think tanks such as the *Jaffe Center for Strategic Studies* and the New Zealand-based *Centre for Strategic Studies* do offer more actual on-line reports and studies. Unfortunately, there tends to be an inverse relationship between the influence of an organization and the amount of material it is willing to provide on-line. The more prestigious and important think tanks like CSIS, *RAND*, *Brookings*, IISS, and SIPRI offer little usable material over the Internet, while less influential think tanks often give more.

In an attempt to counterbalance the "military-industrial complex," some defense spending watchdog groups have established well-

designed Internet sites. These include the *Center for Defense Spending* (which also offers the latest issue of their publication, *Defense Monitor*) and the *Military Spending Working Group*. While these can be unabashedly critical of the defense establishment, they provide a useful alternative perspective which a strategic analyst can use to gain a balanced understanding of the defense budget debates.

Other Internet sites provide information on a specific national security topic. These include *MILNET*, with open source data on worldwide military and intelligence structures, weapons, and force strengths, the *Program on Peacekeeping Policy* that includes news, reports, and links on peacekeeping, and the *Carter Center* with information about the organization founded by the former president and its involvement in Third World democratization and development. Similarly, *IntelWeb* offers valuable descriptions of the intelligence communities of most nations, the *Center for Nonproliferation Studies* provides material on the spread of weapons of mass destruction and their associated technologies, *Democracy Net* covers the work done around the world by the National Endowment for Democracy, and the *United States Institute of Peace* gives a collection of links to sites, news groups, and other resources concerned with conflict resolution.

Among the "single issue" sites, the *Joint Services Conference on Professional Ethics* stands out. It provides a forum for military officers and academics to discuss ethical issues relevant to the military and includes a posting of a monthly ethical problem with comments and discussion from other participants. It also offers papers from an annual conference. This is not truly a strategic site--its greatest use is probably for cadets and junior officers still constructing a professional persona--but it is so well done that it vividly illustrates the potential of the Internet. On a different issue, the *Institute for the Advanced Study of Information Warfare* is a very valuable attempt to provide basic information and links on a subject of rapidly increasing importance.

The Internet also provides strategic analysts a way to keep up with key academic journals covering world politics and security issues. A number of them have home pages providing subscription information, the contents of the most recent issue, and usually a few articles that can be read, downloaded or printed. Examples include *Washington Quarterly*, *Foreign Affairs*, *Foreign Policy*, *Journal of Democracy*, *International Security*, *International Organizations*, *Political Science Quarterly*, *Fletcher Forum*, and *World Politics*. Some important journals of opinion which cover world politics and national security like *Atlantic Monthly*, *National Review*, and the *New Republic* also provide on-line versions of the current issue and sometimes recent back issues as well.

International Organizations and Foreign Government Sites.

A few foreign governments are moving rapidly to provide Internet access to information on their foreign and defense policies, but they tend to be highly concentrated geographically. There are virtually no government web sites of value in Latin America or the Middle East. Some governments in Eastern Europe appear interested in establishing

Internet sites, but their pages are often difficult or impossible to access. In Sub-Saharan Africa, the *African National Congress* site is very good and provides South African news as well as policy statements, but is the sole representative from the region. Somewhat more surprisingly, the Japanese *Ministry of Foreign Affairs* page is one of the few official sites in the Asia-Pacific region that offers much for researchers. It includes summaries of current issues, press conferences, major speeches and articles, and the diplomatic blue book. Elsewhere, the *Australian Defence* and the Canadian *Department of National Defence* pages are good, but deal more with recent reorganizations than with strategy or world affairs. The Canadian Forces College provides a solid collection of military links on its *Peace and Security* page.

Western European governments have established some very useful web sites, including the German Foreign Office's *Auswartiges Amt* (which also includes a link to the English-language *German Information Center*), the Swiss *Zentralstelle fur Gesamtverteidigung*, and the *France Defence* site. The British *Ministry of Defence* home page shows the potential of these types of resources. It contains a summary of the 1995 United Kingdom "White Paper," and the full text of the 1994 paper. In addition, the *Ministry of Defense* page contains a comprehensive press release information section, including access to the U.K. "Central Office of Information Internet Services"--which provides a searchable listing of all press releases by all U.K. government organizations. *UK CALS NEWS*, another link on the *Ministry of Defence* page, provides information on the U.K. defense acquisition process and individual current program status. The *Conflict Studies Research Centre* of the Royal Military Academy (formerly the Soviet Studies Research Centre) is an old-fashioned gopher site, but provides access to a very large number of excellent studies on military and security issues in the former Soviet Union.

Some important international organizations also have Internet sites. The *World Bank* includes useful reports and documents on Third World development. The *United Nations* gopher is potentially invaluable but extraordinarily difficult to use. For example, Security Council or General Assembly resolutions are listed only by number and date rather than subject, and the site has no search engine, so a researcher must know precisely what he or she is looking for in advance. With the addition of a search engine and other updates, this could be one of the most useful locations on the Internet for strategic analysts. As it stands, the U.N.'s Internet site is like the organization itself: persistently struggling to keep pace with global change but never fully succeeding. The text of many treaties signed under the aegis of the United Nations can be found more easily at the *Multilateral Treaties* gopher of Cornell University. Many regional and specialized organizations such as the *Organization of American States* and the *Organization for Economic Cooperation and Development* have also built web sites, but most of them only provide basic information about the organization's structure and mission rather than the text of resolutions and other material of interest to an analyst.

Europa, the web site of the European Union, is by far the most useful of the regional organizations' sites. It includes policies and

agendas as well as basic organizational information. The newly-opened NATO site is an absolute gold mine of material including the text of basic documents, communiqués, press releases, speeches, and studies. It also offers information on seminars and workshops, and has a large collection of documents on the Yugoslavia crisis, both from NATO itself and from the United Nations.

News and Regional Information.

The availability of world news on the Internet is expanding. The Reuters newswire is now provided in a number of spots including *Yahoo*, *Excite*, and commercial service providers such as America Online (AOL). AOL is particularly valuable because it gives the full Reuters wire rather than selections like *Yahoo* and *Excite*. This can be important for research on areas of the world like Africa that do not garner much attention from the mainstream media. Using America Online for research, though, brings new headaches since, in the experience of one of the authors, on-line sessions frequently entail technical problems. The *Associated Press* is also available, but stories only stay on-line for a very short period of time, there is no archive, and coverage of world events is less comprehensive than the full Reuters wire (although similar to the shortened version of Reuters found on *Yahoo* and *Excite*). The *Cable News Network* posts transcripts of many of its broadcasts as well as audio and video clips. These cover many topics but not in much depth. *National Public Radio* also provides transcripts of newscasts and some feature stories. The *USA Today* page provides a truncated version of the paper. The *New York Times* site includes the full paper, but requires a subscription that costs as much as a regular one.

Coverage of specific parts of the world varies by region. There is much material on Europe, including the excellent *OMRI (Open Media Research Institute) Daily Digest* which covers the former Soviet Union. There are some good Asian news sites. In Sub-Saharan Africa only the Republic of South Africa is well-covered on the Internet. *News Briefings from the ANC* publishes nearly a hundred news stories a day from the South African press. Coverage of Latin America and the Middle East is thin. The best way to find specific regional news sources is through the outstanding collection of links on the *World News Index*. *Yahoo* and the *International Security Network* also offer links to some regional news providers.

Conclusions.

Is access to the World Wide Web a necessity for contemporary strategic analysts? Probably not. The web is still in its infancy. The bulk of information remains brochure-level and most web sites are marketing devices rather than sources of data. Analysts wading into the Internet for the first time will find it a jungle. Not only is a small proportion of the available information truly useful, but that tends to be badly organized. Nearly all relevant information of value can be found elsewhere in printed form. In many ways, the web is for a national security professional as a microwave oven is for a cook. A cook with plenty of time and a well-stocked kitchen doesn't need a microwave. Without these, though, a microwave can be crucial. So too

with the web. A strategist with few time pressures and access to a well-stocked library doesn't need the web. Strategists facing time pressure or who don't have a well-stocked library available will find it more useful.

Yet this is changing rapidly. With the exception of a handful of electronic magazines ("e-zines" or "cyberzines"), contemporary providers of information see the web as a supplement to conventional publishing and distribution rather than a substitute for it. But eventually there may be vital information on the web not available in any other medium. Today, the Internet is far from a mature resource. Users and information providers are still experimenting to find out what works and what doesn't. Change is extensive and rapid. New resources and methods appear and others fade away on a daily basis. Within a few years, though, presence on the Internet is likely to stabilize somewhat. Then an analyst's collection of Internet bookmarks will be as valuable as a rolodex of personal contacts is now. The astute analyst will prepare for this. By exploring the web today and developing effective methods for finding and using electronic information, he or she will be ready when the Internet finally does make the leap from luxury to necessity.

APPENDIX A

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Internet Sites.

The method for accessing the Internet sites listed here will vary according to the web browser used. To open a site with Netscape, the most popular browser, either click on the "Open" button, pull down the "file" menu and select "open location," or hit control-O, and then type in the URL (electronic address) provided.

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AirForceLink <http://www.dtic.dla.mil/airforcelink/>

Airpower Journal <http://www.cdsar.af.mil/apje.html>

Air University <http://www.au.af.mil/>

Alta Vista <http://altavista.digital.com/>

American Universities <http://www.clas.ufl.edu/CLAS/ american-universities.html>

Armed Forces Staff College http://www.ndu.edu/ndu/afsc/afsc_top.html

Army Knowledge Network <http://leav-www.army.mil: 80/akn/>

ArmyLink <http://www.army.mil/>

Army Research Laboratory <http://infor.arl.mil/>

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Associated Press http://www1.trib.com/NEWS/ f_listintro.html

Association of the United States Army <http://www. ausa.org/>

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Australian Defence <http://www.adfa.oz.au/DOD/dodhmpgn.html>

Auswärtiges Amt <http://www.auswaertiges-amt.government.de/>

Automated Historical Archives System <http://leav-www.army.mil/akn/ahas.htm>

Battle Labs (TRADOC) <http://157.185.5.3/DefaultBL.html>

Bombs & Bullets <http://www.aber.ac.uk/~ctj94/index.html>

Bosnia Link <http://www.dtic.dla.mil/bosnia/>

Brookings Institution <http://www.brook.edu/>

Cable News Network <http://www.cnn.com/>

Campaign Plan <http://204.7.227.67/f21camp.html>

CapWeb <http://policy.net/capweb/congress.html>

Carter Center <http://www.emory.edu/>

Center for Army Lessons Learned <http://call.army.mil:1100/call.html>

Center for Defense Information <http://www.cdi.org/>

Center for Nonproliferation Studies <http://cns.miis.edu/>

Center for Strategic and International Studies <http://www.csis.org/>

Center for Strategic Leadership <http://carlisle-www.army.mil/usacsl/>

Central Intelligence Agency <http://www.odci.gov/>

Centre for Strategic Studies <http://www.vuw.ac.nz/css/>

College and University Home Pages <http://www.mit.edu:8001/people/cdemello/univ.html>

Commander's Conference <http://204.7.227.67/force21/confrence/conf-toc.html>

Conflict Studies Research Centre <gopher://marvin.stc.nato.int:70/00/secdef/csdc/csdcmain.txt>

Congressional E-mail Directory <http://www.webslingerz.com:80/jhoffman/congress-e-mail.html>

Defense Intelligence Agency <http://www.dia.mil/>

Defense Link <http://www.dtic.dla.mil:80/defenselink/>

Defense Technical Information Web <http://www.dtic.dla.mil/dtiw/>

Democracy Net <http://www.ned.org/>

Department of National Defence <http://ww.dnd.ca/dnd.htm>

Department of State <http://dosfan.lib.uic.edu:80/dosfan.html>

EiNet Galaxy <http://www.einet.net/>

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APPENDIX B

GLOSSARY

Bookmark. All software for accessing the World Wide Web offers the user a means of placing a bookmark at a site to make it easier to find in the future. Since the user may have followed many links to arrive at a site, it is vital to bookmark those that may be of use. A well-organized collection of Internet bookmarks will become an increasingly valuable asset for strategic analysts.

Gateway. A web site that offers links to other web sites rather than providing information or data on a topic.

Gopher. A predecessor of the World Wide Web. A menu-driven system offering text only. Users of the web can access gopher sites and retrieve information.

Home page. Usually the first body of information provided when accessing a web site. Similar to entering the reception area of an office building with a receptionist offering directions to desired locations. Provides basic information about the organization or individual creating the site and usually links to other information at that site or at related sites. Anyone with access to an Internet server can create a home page, so they range from personal pages providing information about the individual to those run by government agencies or major corporations.

Hotlist. A web page that consists almost exclusively of links to other web pages.

Internet (the 'net). A system connecting millions of computers around the world. It is not centrally managed or controlled.

Links. Most web pages include graphics or "hypertext" (often displayed in a different color than the rest of the text and underlined) which, if clicked on, transfer the user to another body of information within the web page or connect them to another web page, sometimes in a different part of the world. By following such links, a user can find a variety of information sources. Following links is also known as "browsing" or "surfing the 'net.'"

News Groups. Discussion groups built around a particular topic. Some are managed, others are not. News Groups take two forms: e-mail groups where subscribers receive comments and postings from other users, or bulletin boards which users access and then read posted messages or post their own.

Search Engine. A computer program resident at a web site that searches for other web sites using parameters provided by the user.

Server. A computer connected to the Internet. Users cannot directly dial-up the Internet using a modem, but must gain access through a server. Many government offices, universities, and large businesses provide access for their employees. For access at home, a

user can either subscribe to one of the commercial on-line services such as America Online, CompuServe, and Prodigy, which provide Internet access in addition to their other features, or to one of the dedicated Internet server companies located in most cities.

URL (uniform resource locator). The electronic "address" of an Internet site. World Wide Web URLs tend to begin "http://www . . ." The first part of a URL indicates the type of access, the second part the name of the computer where the resource resides, and subsequent parts the actual document. Every character on a URL must be entered correctly to access a site. An American URL with an extension of ".edu" is an educational site, ".mil" is military, ".gov" is government, ".org" is a nonprofit organization, and ".com" is a commercial site. Outside of the United States, the extension usually indicates the country. For instance, ".uk" is the United Kingdom and ".za" is South Africa. Most of the country extensions are fairly easy to figure out. For those that aren't, the *International Security Network* provides a full list.

Web Browser. A software program to access web sites. Netscape is the most popular; Mosaic is also widely used. The commercial on-line service providers such as America Online, CompuServe, and Prodigy have developed their own web browsers. Most browsers look similar and are easy to use without training or tutorials.

World Wide Web (also "WWW" or "the web"). The fastest growing element of the Internet. Offers graphics, easy connections to related sites ("links"), and, increasingly, video and audio.

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