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An Outsider's View of the Intelligence Community

- Most Americans do not know what the intelligence community is or does.
- Information which could significantly improve public perception is not classified - - yet is not publicized.
- American citizens would be proud to know of the tremendous accomplishments and contributions of the intelligence, defense and R&D sectors of government.

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PRODUCTIVE AND VALUABLE NATIONAL ASSET

- The formal and informal processes of the intelligence and defense community have been tremendously productive, and have benefited the national defense and security and bolstered the American economy in many ways not fully grasped by the general public.
- It took 30 years after World War II for the story of the Ultra project, which broke the code of the Enigma machine, to be made public.
- It has been said the intelligence community failed to predict the breakup of the Soviet Union... American officials were strangely quiet while it happened... perhaps there is more to the story than we know?

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Stealth Technology

Where did it come from?

- Most Americans probably don't realize the significance of Stealth technology for taking out a country's defenses, enabling a powerful first strike capability.
- What if the Russians had developed Stealth, and right wing factions had taken over the Soviet Union?
- Where did the idea for Stealth come from, and how did it get from idea to invisible airplanes?

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Origin of Stealth Technology

- STEALTH
 - The idea was derived by a Lockheed Skunk Works employee...
 - Reading an eight year old Russian scientific paper...
 - Translated from Russian to English by the Air Force Foreign Technology Division, now NAIC.*
 - OPEN SOURCE INTELLIGENCE AT ITS BEST!
 - Source: " Skunk Works" by Ben Rich (a fabulous book just out)

Open Source Solutions

National Security and Competitiveness

- The cost of collection, translation, analysis, and dissemination of information, has to be viewed in this context.
- Open Source Intelligence, through the ideation it induced for Stealth... and other technologies...
- Through the insights that were gleaned from analysis of open source intelligence, FBIS data feeds,
- May have been one of the most fundamental contributors to the end of the Cold War,
- In ways that are not initially obvious.

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OPEN SOURCE PAYOFFS

Another Example

• XEROGRAPHY

- Haloid Corporation (now Xerox) VP of R&D read of Chester Carlson's invention in a Kodak newsletter that carried an abstract of a story in 1945.
- The idea had been rejected by Kodak, IBM, RCA, Remington Rand, and General Electric. Carlson and Battelle could not find a sponsor.
- Without Haloid's VP seeing this article, it is commonly believed that Xerography would not have been commercialized.

National Champions

What Makes Progress Tick?

- America has been fortunate indeed to have the formal and informal network that exists between intelligence, defense, academia and industry...
- And to have dedicated and invisible champions who have sought out bright people with good ideas, and given them the chance to develop great inventions and technological breakthroughs...
- And given them the chance to fail.
- The scope of the contribution from this formal and informal network is astonishing, and has given the country much of its security, wealth and progress.
- Champions such as J.C. Licklider, Craig Fields, Bob Kahn, Bob Taylor, and Bill Schultheis

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Some Examples of Technologies and Industries Championed

- Aviation
- Communications
- Internet
- Personal computing
- Energy
- Graphics
- Workstation computing
- Xerography
- Gallium Arsenide
- RISC Processing
- Massive Parallel Processing
- High Performance Computing
- Digital Imagery
- Medicine

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ARPA

Behind Many Innovations

- ARPA has been the focal point for funding many innovations. The intelligence community is often a collaborator.
- The scope of the successes is not well known by the general public.
- A 1991 report to Congress stated:

This emphasis on fundamental change is vital to all DARPA programs... DARPA's business is developing and demonstrating technology that leads to fundamental change... Because fundamental change is risky, DARPA's programs always involve a good deal of technical risk, and because risk involves a chance of failure, DARPA programs will occasionally fail.

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VALUE OF BUSINESS INTELLIGENCE

- Nutrasweet CEO Robert Flynn told the SCIP Conference, when asked what competitive intelligence was worth to his organization:
 - Competitive Intelligence at Nutrasweet has resulted in at least \$50 million per year in revenue gained, or avoidance of revenue lost, from competition. It enabled us to survive the loss of our basic aspartame patents two years ago, and still achieve record sales and profits.. Competitive Intelligence reports directly to me.

ARPA'S TIPSTER PROGRAM and DR-LINK

- Tipster is an ARPA initiative to dramatically improve information retrieval and extraction for intelligence analyst use.
- DR-LINK (Document Retrieval through Linguistic Knowledge) technology, developed at Syracuse University by Dr. Elizabeth Liddy, was selected as one of eight proposals funded by Tipster. DR-LINK analyzes and indexes documents on multiple levels (morphological, semantic/concept, syntactic, discourse, pragmatic) using new algorithms and approach.
- Uses natural language queries to find best matches in large document collections.
- Detects and links multiple information types: temporal, discourse, people, organizations, locations, concepts, multiple word phrases, external knowledge bases.
- Cross language retrieval prototype under development (ARPA/Army/ORD)

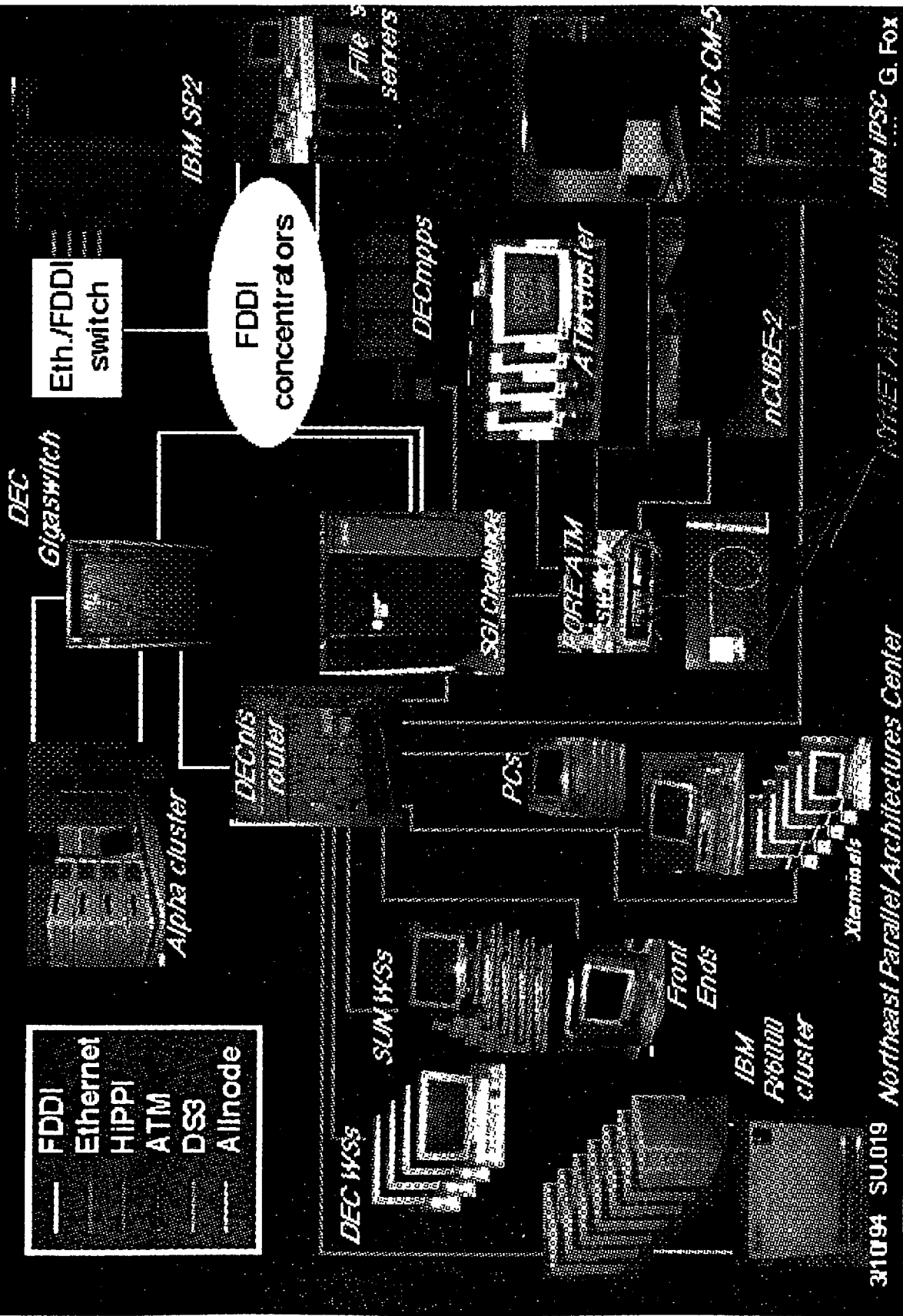
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SYRACUSE UNIVERSITY JOURNAL

NPAC Networking Infrastructure

This diagram does not reflect details of the actual network topology.



DR-LINK RETRIEVAL

Natural Language Understanding

- QUERY AND ARTICLE RETRIEVED FROM TIPSTER PROGRAM
- "Document will report on the proposed building of a new or the expansion of an existing theme park overseas by a U.S. corporation."
- The resulting best match was:
- "Wall Street Journal, 10/1/87 - Six Flags Corp. announced plans to manage and operate an amusement park on Spain's Costa del Sol. Scheduled to open in 1990, the park is intended to form part of a 107,000 acre tourism complex costing about \$575 million. The company, a unit of closely held Wesray Capital Corp. of Morristown, NJ, said Spain is anticipating an increase in tourism because of the 1992 Barcelona Olympics and Seville World's Fair."
- Traditional retrieval systems would not have matched the query with this document. The system imputed that Six Flags Corp. was a U.S. Corporation, and that a theme park is synonymous with an amusement park, and that the article dealt with a proposed action, vs. a historical actuality.

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InfoMall

Northeast Parallel Architecture Center (NPAC) at Syracuse U.

- Developing High Performance Computing & Communications (HPCC) capabilities for information processing
- Focus is information processing
- Integrated image, video, audio and text for real time retrieval
- Facilities:
 - IBM SP-2
 - nCube
 - Connection Machine 5
 - DEC Maspar
 - Intel
 - DEC Alphas
- Co-located with TextWise at CASE Center in Syracuse
- 300+ gigabytes on line today - 1.5 terabytes in 1995
- High speed link to Supercomputer hub
- Primarily corporate sponsorship (over 60 members)
- TextWise/InfoMall program for scaleable intelligent retrieval
- See exhibit at OSS '94

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SUMMARY

An Outsider's View of the Intelligence Community

- ARPA and Intelligence Community backed technologies have benefited the nation's defense and economy, to a degree that substantially exceeds public understanding. This is correctable.
- The informal collaboration between intelligence, defense, academia and industry is as important as the formal structure. Championship and the proliferation of innovation is an opportunity for each of us.
- The future is not yet so predictably safe and secure as to afford a reduction in the system that has worked so well.

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SUMMARY (Cont'd.)

An Outsider's View of the Intelligence Community

- Open Source intelligence can pay extraordinary dividends to R&D and competitive intelligence efforts.
- ARPA and Intelligence efforts are creating an order of magnitude improvement of machine understanding of natural language, enabling a significant step up in the harvesting of information and knowledge from written information.
- TextWise is a beneficiary of this effort, commercializing the new document understanding, extraction and detection capabilities of DR-LINK technology. The technology would not exist without community and ARPA backing.
- Now that I better understand the intelligence community I am quite honored to be associated with it, if only in a peripheral way. I hope that together we can get the word out to our fellow Americans about what a national asset they have in this community.

THIRD INTERNATIONAL SYMPOSIUM on NATIONAL SECURITY & NATIONAL COMPETITIVENESS: OPEN SOURCE SOLUTIONS Proceedings, 1994 Volume II - Link Page

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