



Providing Online Access to Significant Nuclear Research

The Idaho National Laboratory (INL) has been in operation since 1949 and generated the electricity that made the town of Arco, Idaho the first community in the world to be lit by electricity from nuclear power. The INL Research Library staff has provided research assistance to INL employees and collaborators at this U.S. DOE research and development laboratory since 1952.

Through the years, access to nearly 34,000 reports (housed in a vault) has been limited by their hardcopy format and the fact that public access documents are interfiled with sensitive/restricted access documents.

Today, the majority of current laboratory technical and research reports are being produced and disseminated electronically and researcher expectations concerning access have changed.

The Vision

The INL Research Library developed the concept of the National Nuclear Archives (NNA), a collection of laboratory produced technical and research reports, as part of an INL Research Library Knowledge eRepository. The eRepository will showcase INL's knowledge output. Plans call for the inclusion of reports, journal articles, an INL e-journal and other knowledge products.

In 2008, the INL Research Library, in conjunction with INL Information Technologies, implemented the NNA to address researchers' requests for improved access to the information and data in these historical reports. This decision was also influenced by an increase in the number of requests for these reports due to the Laboratory's enhanced role in today's nuclear research.

The National Nuclear Archives is an institutional repository of the nuclear research knowledge produced by the INL over the last 60 years. The vision is to preserve, protect, and disseminate, as appropriate, the unique and important knowledge produced by our institution.

The Process

In 2008, the INL Research Library initiated a contract with an Idaho Falls based small business to begin the digitization of identified technical and research reports that were produced by or for the laboratory and chronicle the nuclear research performed at the laboratory. We believe these reports provide the knowledge base to support the leading edge nuclear research that is being conducted at the INL today and in the future, as well as reflecting the historically groundbreaking work done in Idaho in nuclear reactor design, development, testing, and related fields.

NNA allows the contents of public access (unrestricted) reports to be searched by the public research community, as well as INL researchers.

From paper copies to searchable files is just the beginning.

Quality digitized reports are achieved through the use of high speed Kirtas APT BookScan 2400 digitization equipment, which enables the reports to be scanned without disassembling them. The Kirtas equipment produces high resolution photos which are converted to full-text searchable PDF, for easy reading. With so many reports to digitize, it was decided that the best archival process would be to photograph each page at high resolution, and store them on a server, with frequent back up. This archival and storage procedure ensures that the library has an electronic duplicate in case the original copy is damaged.

These PDFs are searchable both individually and as a collection to address the needs of our researchers. The goal is not to provide researchers with electronic copies of reports, but rather to provide them with access to the information and data contained in the reports. The strategic partnership with INL Information Technologies has also allowed the Research Library to develop a user focused search interface that enables both the discovery and use of digital content. This interface is known as Needle.



The Needle Project

Needle allows searching across multiple data sources and is the key interface for searching the National Nuclear Archive. It will also be the interface used for the INL's Knowledge eRepository.

Needle has the ability to search across both the internet and the INL's intranet.

The first phase of the Needle project is complete. The project team collaborated with Los Alamos National Laboratory, Battelle Memorial Institute, the University of California at Berkeley, Virginia Tech and others to understand their approaches to findability, discovery search, navigation, federation, natural language processing and text mining. After analyzing these approaches, the project team combined many leading edge technology tools into a single interface. Key characteristics of this interface are that it is user friendly and easy to configure.

The Needle interface uses an open-source tool called Carrot2 to federate and cluster search results. With this open source software our team can integrate a variety of technologies and sources to provide a flexible tool for our researchers. The IBM OmniFind Yahoo! Enterprise search solution is used to index and search INL library and other corporate information as sources for the Needle interface. Needle uses API technology to connect to external sources such as OCLC's WorldCat and the internet. The design of this interface is such that many technologies can (plug) interface into it, hopefully even future technologies. Needle currently connects 11 different sources for searching – with more being developed for future implementation.

Summary

Researching what others are doing has been extremely important to the evaluation and implementation of this project. It seems that many entities are attempting to solve the findability problem by themselves rather than combining excellent products to create one system. The INL project team will continue to enhance Needle with good ideas “proudly found elsewhere”.

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