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SEAMARK NAVIGATOR

POWERED BY SIDEREAN

Siderean Seamark Navigator

DISCOVER | ACCESS | PARTICIPATE

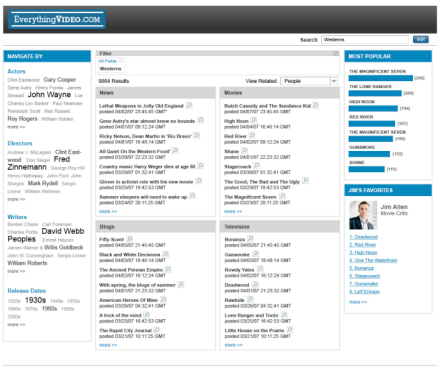
Siderean's Seamark Navigator utilizes relational navigation to power a breakthrough user experience that enables people to *master information discovery.*

The volume of available enterprise information is increasing exponentially. Information consumers are also becoming producers – further adding to the information overload. How are your people dealing with this seemingly overwhelming information flow? The Seamark Navigator information access platform enables people to search, browse, and identify previously unseen relationships between information. These dynamically identified relationships create the context to drive action, enabling users to go beyond the limitations of traditional search and navigation solutions to discover, access, and participate in the information flow as never before.

Visualize Everything in a Single View

For the first time, people can have a practical view of the full range of assets that are available for decisions, research, tasks and projects. You're no longer restricted to finding digital content with search applications that obscure scope thereby limiting the quality of the discovery experience.

Seamark Navigator aggregates structured and unstructured information from both inside and outside the enterprise firewall leveraging a relational navigation solution that enables you to easily pinpoint results. Relational Navigation illuminates previously unseen relationships across all formats of digital information producing a 360° view of your information.



Unlike search, which lacks the ability to offer context, Seamark Navigator does not require you to guess or assume what's available. You no longer have to know how content is classified to improve the accuracy of your query and find what you need since Seamark automatically provides context throughout the discovery process.

Context Drives Action

Seamark Navigator is the first comprehensive relational navigation solution for enterprise digital content. Seamark projects a contextual map of available information and assets into your applications and web sites, or can be used through its own advanced navigation user interface to interactively present relationships, analyses and trends - turning data into actionable information. As a result, customers experience a breakthrough, user-friendly solution.

Seamark's contextual content view readily shows the entire scope of available information and incorporates precision search to help users quickly master information discovery.

From the very first click, Seamark presents a bird's eye perspective of available information; organizing and updating that view with each subsequent click. You can pivot result sets as well as zoom in and zoom out along different paths that you define as you pinpoint specific answers. You will discover new information, relationships or files as you easily explore the context surrounding the topical paths you've selected.

When you find something interesting, you can "tag" and organize the results in a way that makes sense to you. Furthermore, you can collaboratively generate labels or tags with your peers, further categorizing content using a familiar, accessible and shared vocabulary.

Once you have refined your navigation down to relevant results, you can select Seamark's RSS feed support to automatically deliver additional results as the system is updated with new content meeting your parameters of interest.

For more information about Siderean products:
Call. 1.310.647.4266 | Click. www.siderean.com

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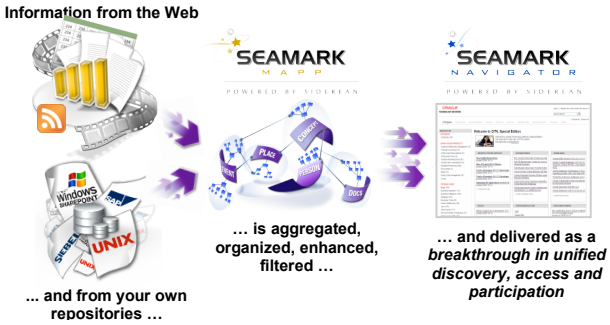
Implementation is a Snap

Seamark Navigator can be easily installed into an existing environment and connected to existing enterprise data stores whether structured or unstructured. Seamark operates as a web service - enabling the industry's most rapid time-to-value in delivering digital information navigation, enterprise mash-ups and federated search.



Relational Navigation Engine

The Seamark navigation engine uses "facets" (properties or entities extracted from the information objects) to expose people to the context of the information. Users then leverage their personal context and intent to determine their next action. Seamark generates unique views into the available assets based on your navigation through the display of facets. Item counts for each facet, as well as the number and type of facets displayed, are updated with each click.

The relational navigation services engine supports the XRBR (XML for Retrieval by Reformulation) protocol, which is used for relational navigation queries and responses. XRBR is a simple language with a compact set of powerful features. It provides a direct interface between the web application and Seamark. XRBR not only describes what objects Seamark should navigate but also controls many aspects of how the results will be displayed for the user experience.

Use of Open Standards

Seamark's use of Web Services, via the open standard HTTP/XML communication protocol of SOAP and AJAX, allows fast, easy integration with existing corporate infrastructure, websites and applications.

Additionally, Seamark uses the Resource Description Framework (RDF) and Web Ontology Language (OWL) standards developed by the World-Wide Web Consortium (W3C). These open standards are specifically designed to provide a common way to describe information so that it can be read and understood by computers for representing metadata.

Seamark Navigator 4.5 Features

Relational Navigation: Seamark Navigator seamlessly combines advanced navigation and search functions. Explore relationships between information objects and *pivot* across information types to give you a full 360° view. With each click, Seamark dynamically shows you contextual navigation options to give you the necessary information to take the next step.

Scalability: Seamark Navigator server clusters enable massive scalability (multiple *billions* of relations) with sub-second response times over a utility computing grid. Seamark's cluster architecture accommodates predictable and cost-effective growth.

Participation: The days of non-interactive solutions are over. People need ways to interact with the information flow. Easily implement and integrate participation and collaboration features like: tagging, voting, ranking, commenting/reviewing, saved/shared searches, and alerting.

Enhanced Security: Seamark features external authentication support, granular permissions and role-based access control (RBAC). Roles and permissions can be assigned to users to ensure secure access to navigation applications and results.

Time to Value: No more waiting months for your solution to be deployed. Siderean takes time to value seriously. By leveraging a point and click metaphor for feed management and layout building, you can deploy a solution in as quickly as a week. Just as important, Seamark is highly flexible - allowing you to iterate your solution after the initial deployment.

Enhanced Search: Keyword search features such as term highlighting, proximity, spelling corrections, synonym support, Boolean and grouping search are tightly integrated. Sophisticated relevance ranking enables the boosting of terms and facets.

External Search Integration: Users can federate their queries to other search engines like the Google Search Appliance and Oracle Secure Enterprise Search and return the results to Seamark.

API Support: Seamark provides a SOAP service that exposes an endpoint for access to query and management services as well as a JDBC driver interface to the SeamarkQL query language.

Platform Support: Seamark Navigator is a pure Java application and supports all major enterprise hardware platforms and operating systems including Windows, Solaris and Linux. Database support includes Oracle, SQL Server and MySQL.

For more information about Siderean products:
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SIDEREAN™

Navigation for the Digital Universe

Relational Navigation

Unified Discovery, Access & Participation

January 2007

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SIDEREAN™
Navigation for the Digital Universe

Table of Contents

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Navigation for the Digital Universe

Information Access: Producers and Consumers Merge

Demand for information is exploding and the days of brochure-ware websites are long gone. Information is being produced and consumed at a continually increasing rate. People are demanding more information, from more points of view, and more ways to participate than ever before. You can see this being led by consumer sites. The most visited sites are no longer pure content sites. They are content aggregators that have a strong social network/collaboration component – sites like www.myspace.com, www.digg.com, and www.flickr.com. While we don't expect nor want to turn your site into MySpace, there are definitely transferable lessons to be learned for the enterprise.

Essentially, your content alone is not enough. The big question is how do I get interest and maintain relevance while maintaining editorial control over the information flow?

Audience requirements are also maturing:

- For **Consumers** it's about ***"Findability".*** A highly usable and useful source of rich information is where they will consistently return to for answers to questions or the desire to browse new subjects.
- For **Contributors (enthusiasts, editors, remixers)** it's about ***"editorial control".*** High productivity power tools for remixing, tagging, annotating and playlisting content and data into a niche market navigation site quickly will deliver the real-time requirements of this audience.
- For **Publishers** it's about ***"enhanced relevance increases eyeballs".*** A source of consumer-generated metadata that can increase the value of core content and data offerings drives user visits and stickiness
- For **Advertisers** it's about ***"precise placement of advertising".*** Delivering higher yield ads based on navigation rather than keywords

Search: The First Step to Discovery

Today, business success is increasingly defined by how well you can get information to your audience, not only channeled among your own diverse operations but also connected beyond the enterprise with customers, suppliers and partners. Information flows from everywhere, all of the time and in increasing amounts; you have to channel the flow or risk losing your audience, customers and/or market relevance.

The information value chain is changing rapidly. Initially business information was computer-centric – optimized around the applications that created and maintained that information and provided tools for reporting and querying that information. Then user-centric capabilities were added, such as desktop computing and then data warehouse and business intelligence capabilities. User-centric information adds personal and work group information along with repurposed enterprise information. However, both of these models are mostly for structured information and rely on enterprise control and management. In today's "network-centric" enterprise much of the critical needed information is unstructured and most of the information resides outside the enterprise and is not readily "managed" or "controlled" in the traditional I.T. sense.

The bottom line is that dynamic on-line information is exploding and users want to contribute and have a choice in filtering and managing it. Information aggregators are gaining mind and traffic share with subscription and advertising dollars follow those eyeballs.

Search can be a starting point for accessing information on the web and may suffice for simple information retrieval requirements. However, search requires significant added personal effort to achieve reasonable results. Search returns huge quantities of false positives and rarely returns comprehensive results even when the false positives are eliminated.

Search alone is inefficient, insufficient, and usually unacceptable to meet the more demanding requirements of the enterprise. Ultimately people want to see the full scope of information available, find what they want, discover what they didn't know but should have and choose their own ways to filter and share information.

Have you ever felt like the more access to information you have, the more difficult decision making has become? Corporations thrive on digital information today and billions of dollars are spent yearly in order to improve the generation, access, management and archive of structured data and unstructured content, all in the name of improved productivity. But have these improvements in our ability to create and manage business information truly improved corporate productivity, or at a minimum, the productivity of information-based employees?

With navigation, people do not need to guess how to ask for information they need (like they do with keyword search) because relevant content is presented to them to explore. They immediately get a sense of all the content that is available on a particular topic. Navigation is the perfect marriage between the "bird's eye" perspective and "bug's eye" view.

"Navigation" is "the act of steering a course through a medium." The digital equivalent of real-world navigation is relational navigation. It answers two questions for the user. Like a map, it tells us "what's out there." Once we identify our destination, it tells us "how to steer a course from here to our goal understanding the relationships along the way." Traditional keyword search in contrast makes us grope blindly at potential destinations. It doesn't help us find our way.

Information Provisioning: Deliver Scope and Discovery

Information provisioning provides the appropriate views to structured and unstructured information in the enterprise, extended enterprise (supply chains, customers, suppliers, partners, etc.), and on the Internet. Information provisioning goes beyond accessing structured information on desktops, LANs and WANs, to potentially access all connectable information and to do so in an efficient and effective way as to expose all of the relationships across the information.

Enterprise Information Provisioning adds the business dimension of networked information. It combines information within the enterprise with information outside the enterprise and provides the robustness of access and relationship management required for an effective business solution.

Enterprise Information Provisioning rises to business-class standards. In business you may need the complete answer, not just a partial or starting point answer. For example, to develop compelling communities of interest you need comprehensive information, not just partial information. For knowledge workers completing research, having all of the information is critical and failing to find all relevant information can be disastrous.

In today's global economy clogged with competitors, customers flow to the companies that are the easiest to do business with – it's not enough that they can find what they want about you and your products and services, rather it must be quick and easy for them to find exactly what they need.

Failure to "know what you don't know but should" can be personally annoying but can be disastrous in business – finding hidden information and relationships can be essential to networked information in the enterprise.

Know What You Don't Know

In today's competitive economy it's not enough to know what you need to know you must also know what you didn't know you needed – key non-apparent information that materially impacts business success. Relational navigation can reveal hidden relationships and resolve unapparent ambiguity to track down this "need-to-know but unknown" information.

Imagine a bookstore with no visible inventory. If you want a book, you have to ask a clerk for assistance. In this example, which demonstrates the inherent limitations of keyword search, the shopper knows nothing about the kinds of books the store carries or specializes in, whether it has books on the shopper's desired topic of interest, or how many books might relate to that topic. All the shopper can do is to provide the clerk with a few phrases that might describe the book. This, at best, results in a list of books that the clerk thinks are interesting, not the ones most suited to the needs of the consumer.

In contrast, a navigational experience lets the shopper see the whole store. Shoppers quickly get a sense of the store's organization, characteristics, and scope of material as soon as they enter. Navigation lets

the shopper approach the right shelf instead of depending upon the clerk as a filter. A shopper can freely move from one area of interest to another, such as looking for books available on a topic, identifying what other books the author has written, and discovering which other authors have written similar books.

Relational navigation has revolutionized traditional search by allowing organizations to intelligently locate the information they need to make good business decisions. Navigation-based solutions aggregate data from structured and unstructured sources and organize it, allowing users to navigate content from a "bird's eye" perspective – a big picture view of all the information available – to drill down to the "bug's eye" view – the specific dataset users are looking for. ***This gives knowledge workers a high-level perspective, suddenly letting them discover things they don't know that they should know.*** Ultimately this ability to discover unexplored information adds significant value to the individual knowledge worker as well as the enterprise at large.

Relational navigation breaks down the artificial distinctions between: free text search and database "slicing and dicing", finding and discovering, search and analytics, text retrieval and fact retrieval. Relational navigation delivers context and scope for exploration and discovery.

The true value of relational navigation can be realized around the following business issues that require reasoning capabilities and the ability to "connect the dots" either in business compliance, discovery research or an intelligence context. Examples include:

- **360^{o} View:** Ability to aggregate internal and external data sources to provide a complete view of a topic by visualizing previously unrealized relationships; providing a comprehensive inside-out exploration within scope and context of a particular business inquiry or analysis requirement.

- **Unanticipated Browse:** Ability to dynamically deliver scope and context as well as pivoting and sub-setting for metadata instead of hard-coding navigation into all web and application requirements allowing navigation in every direction. Delivers everything from a "bird's eye to a bug's eye" view of information.

- **Communities of Interest:** Ability to aggregate internal and external information sources in order to establish a "total topic-relevant view" for greater "brand stickiness" and/or "brand expansion"; providing a more dynamic outside-in exploration of a topic for greater collaboration.

- **eDiscovery (Regulatory Compliance):** Answering the question: How do I find the information I need to meet various regulatory reporting requirements? With increasing regulation, enterprises need to retain an ever increasing amount of information and retrieve that data and supply it to regulators quickly and accurately. Further complicating the landscape for enterprise IT managers are more complex storage requirements for the discovery of this information.
  Enter relational navigation, which gives the IT manager a view at all the data related to a particular request, plus the ability to pinpoint the specific data set needed.

- **eCommerce:** Answering the question "How to find the goods or services that I need/want/desire?" Relational navigation provides a view to all the data related to a particular request, plus the ability to pinpoint the specific item "in context" to the request.

- **Business Intelligence:** Ability to aggregate internal and external information sources in order to establish a view to "what you don't know but should on a person, place or thing"; providing a more accessible version of business intelligence applications without the need for the development of a classic data warehouse cube and unending sets of static reports for understanding concepts as well as numeric values.

Relational navigation provides meaningful labels that reflect the concepts relevant to a domain. These labels are represented as "metadata" and are either created manually or assigned automatically to documents or other resources. Relational navigation systems have the characteristics of being coherent and complete. This provides an advantage over traditional search which typically produces long lists of results with very little context and clustering systems which can be useful for clarifying and refining a vague query but lack the precision and recall of relational navigation systems.

Context Drives Action

One of the unanticipated by-products of Moore's Law is the explosive growth of data. Since computing power and resources are doubling every 18 months, the data created and stored as a result of that computing power has grown exponentially. In fact, the total amount of the world's newly generated digital information in 2005 exploded by 60%--to over 8 exabytes from 5 exabytes in 2003, according to figures and extrapolations developed by the University of California at Berkeley. An exabyte is a billion gigabytes. To give you an idea of scale, 5 exabytes would be equal to all the human words ever spoken by human beings.

That means that by 2005, the world had generated 57,000 times the total of all information in the Library of Congress--that's 8 exabytes. Furthermore, 93% of all data is born digital. Enterprises are drowning in a "sea of information". Knowledge workers are basing business decisions on guesswork because they can't pluck the critical items from the flood of data. The volume and complexity of data is growing daily while the users have less and less time to digest it.

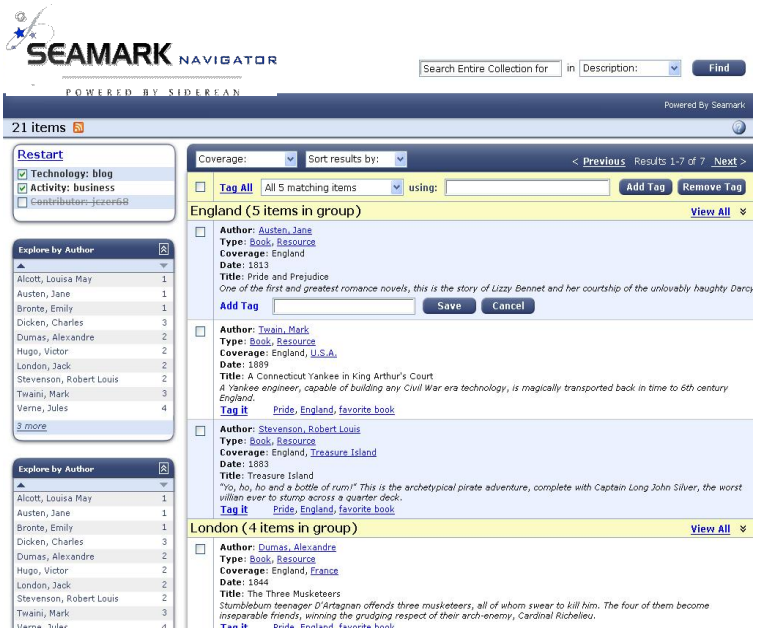
A library contains thousands of books, but you don't have to read every book in the library to find the one you want. To find a book, you look in the library's catalog. The catalog entries describe each book using a standard set of characteristics such as author, title and subject.

A library catalog entry is an example of *metadata*, which is information that systematically describes each resource in a collection. Author, title and subject are *facets* of the metadata.

Facets that organize the collection are almost always non-overlapping. In other words, the facets describe the collection in different, almost independent ways. Indexing books by author is quite different from indexing them by location or title, for instance. We say the facets are "almost" independent because in real life it is possible to encounter an author named "London," or a travel guide titled "London," even though "London" is usually encountered as a city of publication.

Facets can also be thought of as dimensions in a multi-dimensional space. The collection can be described in terms of the n-dimensional location of each object within that space. When we navigate across these collections, we ask the navigation system to go to a particular part of this space and tell us what it finds there.

Faceted metadata can be used to describe any type of collection. Instead of books, the collection might be made up of retail products on an e-commerce site, or research papers, birth certificate documents, web pages, pictures of athletes and their statistics, specifications for chemical reagents, engineering drawings of aircraft parts, short stories, job candidates, or anything at all. The type and format of collection makes no difference.



While tagging is an old idea, it has been getting a lot of attention lately. Tags are facet values authored by users. Several recent web applications have provided end-user tagging with a strong immediate social benefit: We get to contribute to, and benefit from, the tagging done by others. This provides the "network effect" and allows communities of interest to share information.

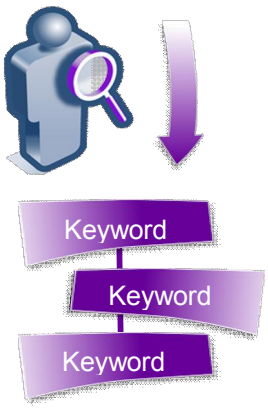
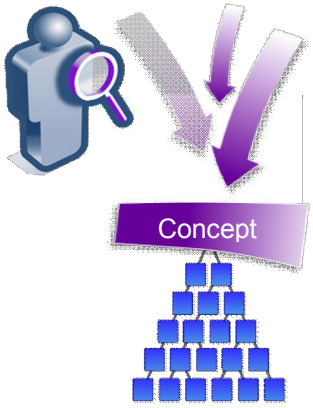
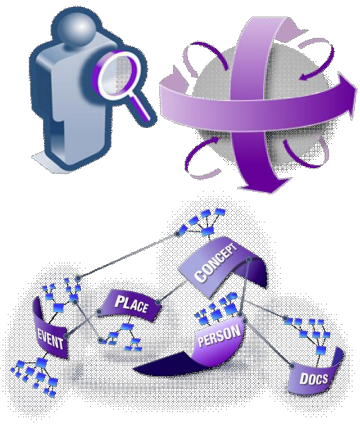
Whether in the form of tags or facets, availability of metadata, the data about the structure, context, and meaning of raw information, enables machines to easily organize and provide a rich navigation experience to the user.

Illuminate Previously Unseen Relationships

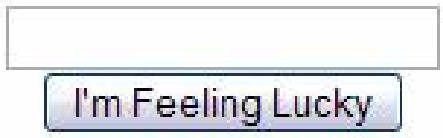
Wouldn't it be nice to have a crystal ball that provided comprehensive answers to all of your business queries? Wouldn't it be nice if that crystal ball could also make available all related information to the question, depending upon scope and context, without having to ask or even knowing what to ask for?

Just think about it; never having to fear missing a crucial piece of data during an audit, or knowing that every decision made has been optimized by the evaluation of a 360° view of available structured data and unstructured content organized in such a way as to facilitate exploration and discovery in an intuitive manner.

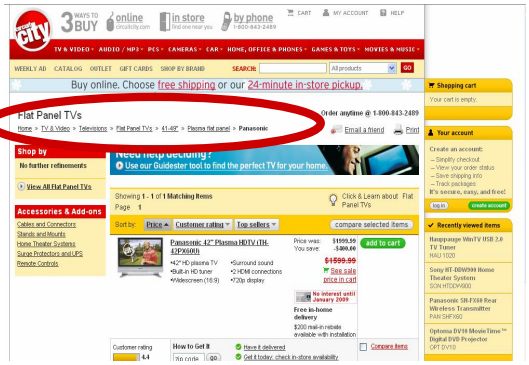
Today, you have three fundamental choices for exploring and discovering information buried across and outside of your enterprise. These three methodologies are:

Keyword Search	Guided Navigation®	Relational Navigation
		
Keyword Driven •Relevance Ranking •Too much or nothing •Have to know what to ask •Machine defined	**Anticipated** •Fixed relationships •Drill down •XML •Consultant defined	**Unanticipated** •Dynamic relationships •Drill, pivot & tumble •RDF/OWL •User defined

Keyword Search is the most common methodology and a good starting point if you already know what it is you are looking for. With this methodology you drill down using a series of keywords that will deliver results through algorithm-based relevancy rankings. The most obvious benefit is ease of use; you only type in a keyword and up comes the results. So if you search on the keyword "cancer" you would get 176,000,000 results with those listed on page one being presumably the most relevant.



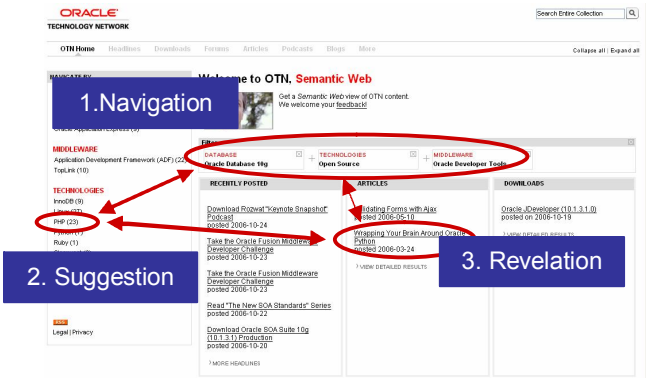
Unfortunately search alone can not illuminate relationships across the data sets, so you have to know specifically what you are looking for in order to find it. You will either get too many results or none with no way of knowing what alternatives exist.



Guided Navigation® goes beyond traditional keyword search to deliver a list of categories available for browse in addition to any results. With this methodology you build a query dynamically based on available facets of information presented by the user interface. These facets have been hard coded as part of a hierarchal tree structure and the application editor determines which facets are visible at specific locations. In this way, the user is "guided" to specific information the editor wants the user to "discover." So a search on "cancer" would provide categories like "types", "pharmaceutical cures", "treatment centers", and "oncologists" if those were the specific categories the editor wanted the user to see.

All relationships within and across the data are fixed within the hierarchal tree structure and require a fair amount of development resource to setup and maintain. In guided navigation the addition of new categories like "natural cures" to the example above would require a significant amount of new development.

Relational Navigation takes Guided Navigation a step further by delivering transparency to uncovering the relationships within and across the data regardless of format or original source. More importantly, Relational Navigation relies on "graph-based" technology which allows equal navigation in any direction across all views. In other words you can pivot across subjects in addition to drilling down and expanding up. So, referring to the same example above, with Relational Navigation you could have drilled down on a new drug for cancer treatment and then pivoted to view the clinical studies on that drug for adults versus children or its effect on various types of cancer.



This allows for the blending of internal and external content for greater usability because new data and subsequent relationships are added seamlessly based on administrator controlled information feeds. You get navigation, browse suggestions, as well as revelations of previously unseen relationships across data sets. With Relational Navigation you can give the user more control over the exploration and unanticipated discovery of information while controlling who has access to what through security and data provenance.

User Controlled Information Access

Organizations are recognizing the convergence of information consumers and producers and are now looking for ways to implement effective solutions for more user controled information access. A recent Siderean Seamark application for a leading software company enabled the client's customers to achieve

a new level of information access and community. By aggregating muliple sources of content into a single information portal with a common search and browse metaphor, this client achieved a breathrough user experience for its customers. The Seamak application extends the search and browse metaphor over each of six information types: headlines, articles, downloads, blogs, podcasts, and forum posts. These information containers allow a single unified view of all information available. Users are able to personalize the existence and order of the information containers. In addition, many of the information types support additional data visualizations including tag clouds, contributor clouds, and timelines. Each of these visualizations puts the user in control of the information by suggesting the next information discovery step to take. ***The community now enjoys a fast, intuitive and satisfying customer experience that puts the user in control of the discovery process.*** This could not have been accomplished without Relational Navigation.

Relational Navigation

Relational navigation puts multi-source content at user's fingertips to propel unified access, discovery and participation. Siderean's Relational Navigation Platform is built around the following key experiences:

- ***Relationships drive action*** – Seeing and understanding relationships between information allows users to discover and participate in the information flow. This is unlike search which is all about exact word matches and the user's ability to remember and user keywords and also unlike guided navigation which supports fixed relationships and drill down only. Relational navigation identifies relationships dynamically and allows users to pivot around the information set. Relational Navigation is different from keyword search and from guided navigation.

- ***Context is key to direction*** – context helps users decide what is of interest and how to proceed. Navigation context is the directional signpost that helps explorers find their way in unchartered territory. Navigation metaphors - expand, narrow, and pivot - will help information seekers by giving them contextual direction. Search shakes words from the tree, but in a singular list they lose all meaning. Context provides Siderean a clear difference from search by maintaining context throughout the discovery process.

- ***Participation increases value*** – By facilitating participation, Siderean allows web sites to increase traffic, interest, and stickiness leading to more relevance and value.

The Siderean difference is Relational Navigation, enabled by Seamark our Information Access Platform. Keyword search alone in information-dense websites is obsolete. Our Relational Navigation solution is different because it provides context which drives user action. Search provides listings – relational navigation is based on graphs of relationships between information; this allows users to follow these relationships for an unanticipated navigation and discovery experience.

Seamark Solutions – Aggregate, Navigate, Participate

At Siderean Software, we have applied several decades of experience in innovative search solutions to the problem of information access. Our solution is relational navigation. It provides a systematic approach to information discovery, no matter its source or format, giving enterprises the ability to discover information instantly whether it resides in the enterprise or on the Web. Siderean's Information Access Platform features Seamark, our relational navigation solution. It is based on the use of faceted metadata to describe the characteristics of Web pages, enterprise data and other resources.

The Seamark Information Access Platform consists of three applications:

- **Seamark Navigator** discovers and indexes content, pre-calculates relationships and suggests paths for data exploration. Its primary architectural components include a metadata aggregator, a scalable RDF store, and a relational navigation engine, all within an industry-standard Web services interface.

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- **Seamark MAPP** (Metadata Assembly Processing Platform) is a scalable and extensible metadata-generation system, built on the open-source UIMA framework to harvest metadata from sources such as MS SharePoint, RSS feeds, Web content and various file systems.

SEAMARK MAPP
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- **Seamark Analytics** is a tool that captures and displays usage patterns (within a navigational application framework) to reveal how customers and users are using Seamark Navigator. Seamark Analytics can be used to improve information access, conversions, and up-sell and cross-sell opportunities.

SEAMARK ANALYTICS
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Seamark Navigator Architecture

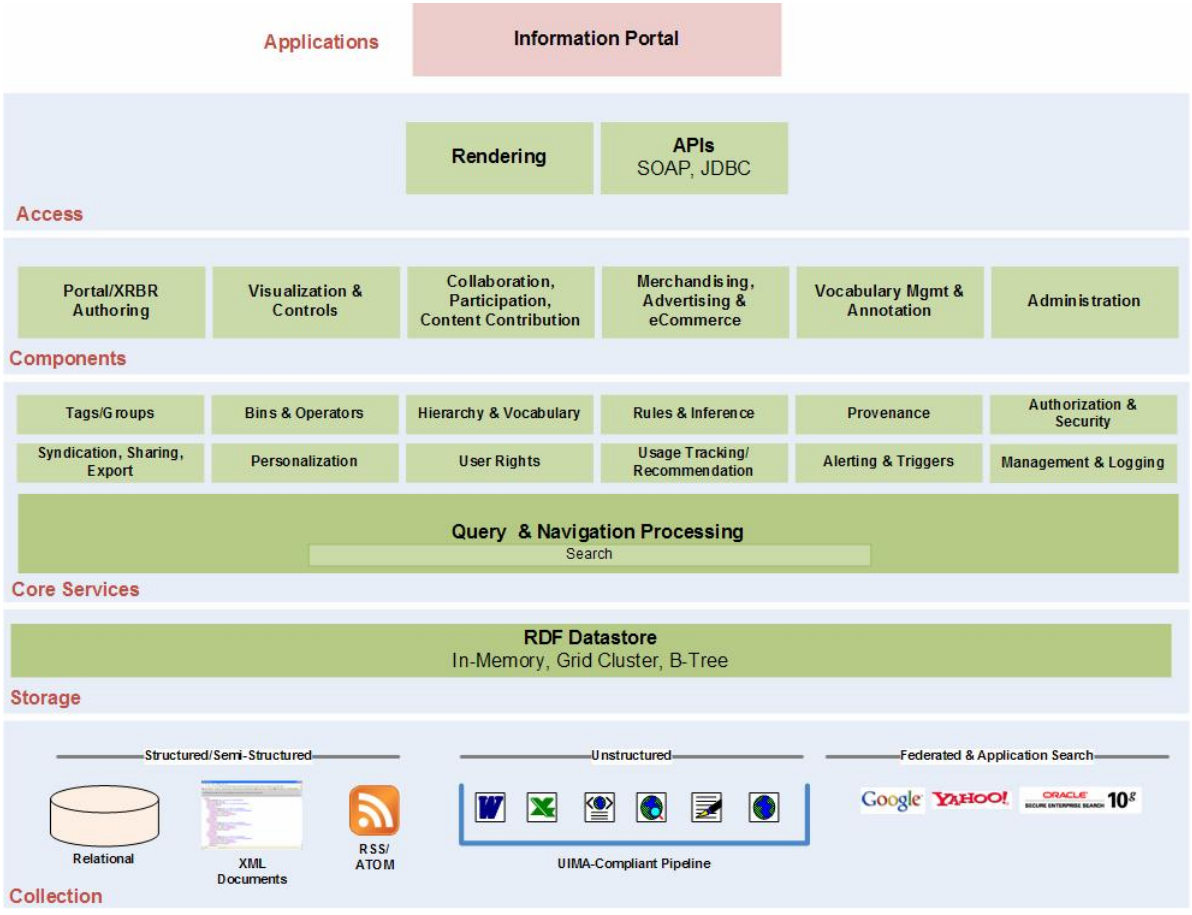
Siderean has taken a unique approach in developing Seamark. Siderean's vision began with the Semantic Web standards: the international project to provide a common representation framework, built on open standards that allow data and information to be shared and reused across application, enterprise and community boundaries. The Semantic Web standards focus on two things. It requires common formats for interchange of data, and a semantic framework for recording how data relates to real world objects. Today, humans can easily use the Web to book reservations, find locations and translate words

from one language to another. Machines would not know where to start because the Web today focuses on HTML, which describes how the data is going to look but does not describe the data itself.

The same problem occurs within an enterprise. There is no common standard to describe the data in an enterprise. Data is generally tightly bound to specific applications, yet the data itself could be of great value when aggregated with other data sources. Siderean strongly believes that information should not be "black boxed" within isolated applications. Enterprises need a "Web of Data" in order to make the information easier to understand, navigate, share, re-use, aggregate and extend to derive meaning. In order to achieve this "Web of Data," Seamark Navigator uses metadata and encodes it with the Resource Description Framework (RDF) open standard developed by the W3C. RDF is a framework for describing and interchanging metadata, which is at the core of the Seamark Navigator solution.

Seamark Navigator is a 100% pure Java application and supports all major enterprise hardware and operating systems platforms from Windows, Solaris to Linux as well as the major database vendors such as Oracle, SQL Server, and MySQL.

Seamark Navigator provides all the infrastructure support to develop and deploy applications that are enabled for navigation and discovery. Seamark Navigator components consist of:



Get Information

Seamark Navigator supports the aggregation of data from both structured and unstructured sources in the form of "feeds". A feed can be a file on a website; an XML document from a file system; an RSS feed; a live query into a relational database; a Web services call from another application; or even direct input from external search engines such as Google Mini or Oracle SES. Seamark supports an inline XSL transform pipeline that enables the Seamark Administrator to tailor a feed to a specific application. A Seamark application can support multiple feeds from many different sources and update each of them on independent schedules. Multiple feeds let Seamark aggregate information from multiple sources into a single informational model.

Manipulate Metadata

Once the feeds have been transformed into RDF, Seamark leverages a relational database to store the RDF. For performance reasons, the actual database is not used during query execution. Instead, Seamark keeps its indexes in RAM and leverages specific indexing techniques to optimize for speed and storage. Seamark also integrates seamlessly with the Jakarta Lucene text search engine to support both browse and free text search across the entire aggregated metadata store.

Seamark also supports the integration of other search engines such as Google and Oracle Secure Search. Seamark federates the search term query across multiple search engines and presents the results back to the Seamark application. The user can then tag the selected results and add them to the metadata store as permanent additions to Seamark's collection.

One of the major advantages of using RDF is that Seamark is able to support a form of reasoning with RDFS/OWL entailment. Entailment automatically extends the logical relationships among RDF resources in the RDF model. We are familiar with situations where the presence of one fact lets us deduce the presence of another fact. If the second fact is *entailed* by the first fact, then it *must* be true. Seamark uses the rules of entailment to fill in the unstated relationships among resources and properties in the collection. This lets Seamark navigate more flexibly, especially in situations where two or more collections have been combined using inconsistent representations.

The faceted navigation services engine supports the patented XRBR (XML for Retrieval by Reformulation) protocol, which is used for faceted navigation queries and responses. XRBR is a simple language with a small but powerful set of features. It provides a direct interface between the web application and Seamark. XRBR not only describes what objects Seamark should navigate over but it also controls many aspects of how the results are displayed to the user.

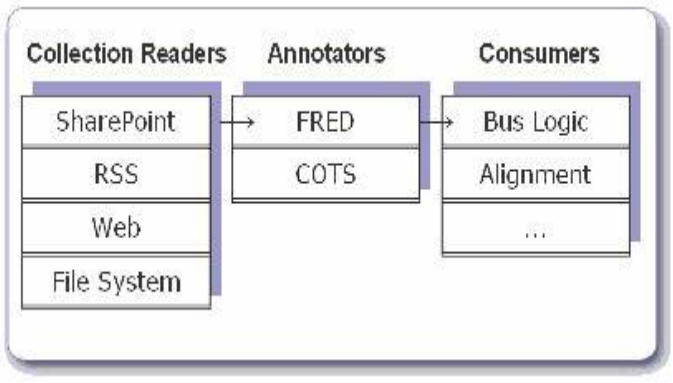
Seamark also supports a SPARQL-based query language that customers can use to issues SQL like calls to the RDF store. This further enables easy integration across enterprise applications including 3rd party reporting solutions such as Crystal Reports.

Building Relational Navigation Pages

Relational navigation pages are created through the Seamark Administration UI from XRBR queries generated against a model. Relational navigation pages are JSP pages which use a tag library to render the navigation user experience. Tag libraries enable customers to rapidly and easily embed navigation into their own web applications. The tag library in turn leverages the Seamark client API, which provides access to XRBR queries and responses and abstracts away the SOAP endpoint.

Need Metadata?

Using Seamark's Metadata Assembly Process Platform (MAPP), Seamark can harvest unstructured content and perform metadata extraction against controlled vocabularies and taxonomies. MAPP is based on the Unstructured Information Management Architecture (UIMA) designed by IBM. This open architecture enables Seamark to collect content from many different sources, convert it to text and perform entity extraction (annotation) against the extracted text. UIMA also enables Seamark to plug in a number of different entity extraction solutions to further enhance the generated metadata with features like sentiment analysis and summary header generation.



Need Analytics?

Seamark Analytics uses a combination of browse, query and navigate with analytic views to provide end users with a powerful adhoc business intelligence solution. The navigation engine provides "in-context" views with adhoc queries thus removing the dependency of having IT create special reports for the user.

This solution allows graphical interrogation of the navigation usage of a Seamark system or for the classic business intelligence challenges of having to graphically interpret the results of business inquiries.

Aspire or Expire

According to Enterprise Strategy Group: "One of the reasons the Information Access market is experiencing a fundamental shift is because enterprises are trying to extract more value from their information assets, thus demanding more features from their search vendors. Enterprises no longer want point solutions to facilitate one function such as enterprise search; rather, they want solutions that blend together different functions such as desktop and Web search, knowledge and content management, and analytics and Business Intelligence. Siderean helps achieve this blend, going beyond traditional search by allowing users to conduct flexible, spontaneous inquiries. Users can also interact with results to uncover relationships that help them find out what they may not know. Discovering these previously unforeseen relationships is a powerful function that gives users the scope they need to make critical business decisions. Without scope, many decisions made in business today could be compromised."

By implementing a relational navigation solution, you can:

- ✓ Deliver on the promise of everything digital in a single view for better/faster information access; aggregate, navigate and participate.
- ✓ Improve productivity by providing scope and context to the right user to the right information with the least amount of clicks.
- ✓ Reconcile the human desire to start at a "bird's eye" perspective of information assets before driving down to a "bug's eye" level.
- ✓ Conduct business across an extended enterprise for your eBusiness initiatives with minimal impact to development resources or existing applications.

About Siderean

Siderean Software, Inc. helps people quickly view and explore the full scope of enterprise and Web-based information available for better-informed decision making. Going beyond search, Siderean illuminates previously unseen relationships that help users discover new avenues of exploration and "lets you know what you don't know" while navigating from a "bird's-eye" to a "bug's-eye" view. Founded in 2001, Siderean is backed by leading investment firms Clearstone Venture Partners, InnoCal Venture Capital and Red Rock Ventures.

For more information about Siderean or to find out how your corporation can gain the benefits of Relational Navigation, please visit www.siderean.com.

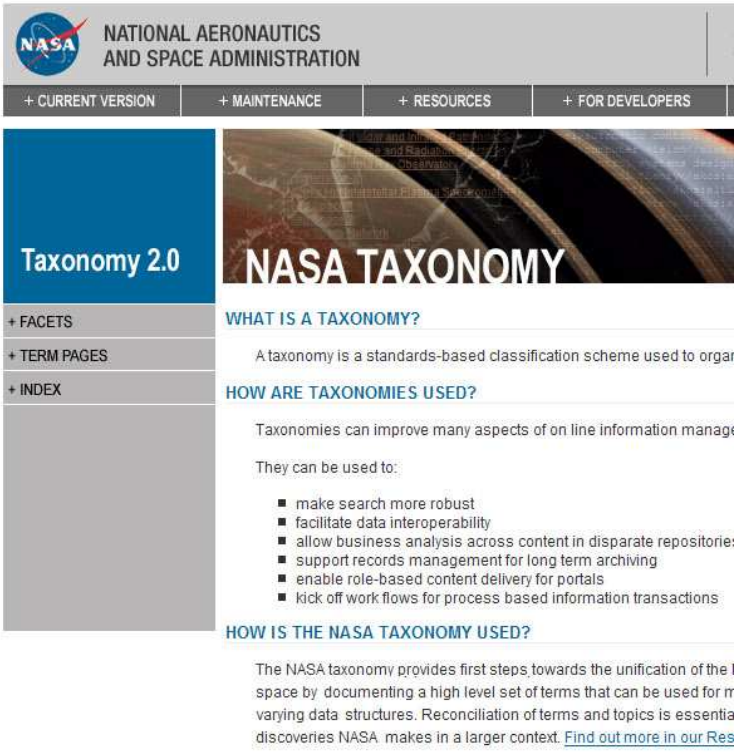
Case Study For Enhanced NASA Search Using Faceted Navigation

Problem Statement:

NASA has many repositories across the United States with information of interest to employees. How will a user find information scattered across multiple locations?

Solution:

Use a common semantic layer to unify the information and create associations between information objects. The common semantic layer is known as the NASA Taxonomy.



Faceted Navigation:

By reconciling metadata to a common vocabulary, information discovery is enabled for mission teams across the Agency. No longer do they have to search by key word. Instead users can browse through categories to quickly filter through many objects.

The faceted navigation system shown here is Seamark by Siderean Software Corporation.