Thoughts on Enterprise Search (and AI)

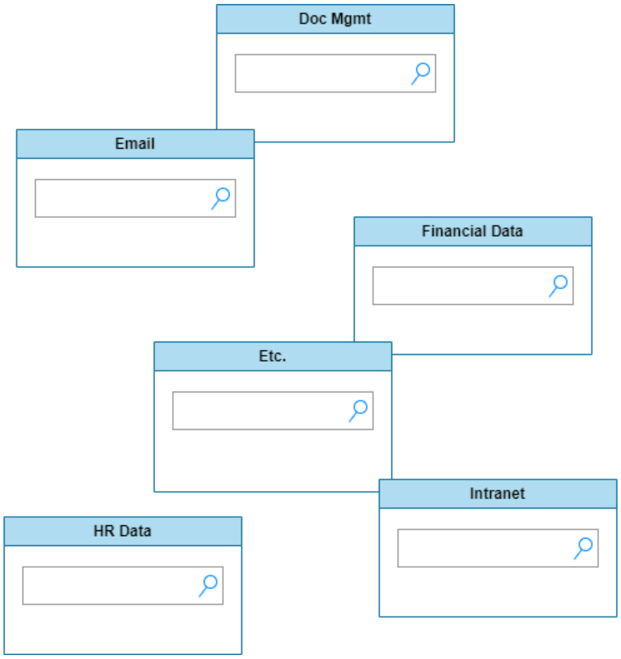
“Enterprise” search can mean many things, so I thought it would be useful to organize my thoughts on the subject. Having said that, what follows are artificial distinctions between types of enterprise search, and I have never seen “pure” examples of search “in the wild”. For the purposes of discussion, I categorize search solutions as one of the following three types:

- Fragmented
- Centralized
- Distributed

In practice, enterprises will have all three - sometimes working together - and sometimes disconnected and even competing for seekers attention.

Fragmented Search

Seekers go to each system to search that system's data. The search UI is distinct for each system, and so the users must learn how search works in each system they wish to query.



Pros:

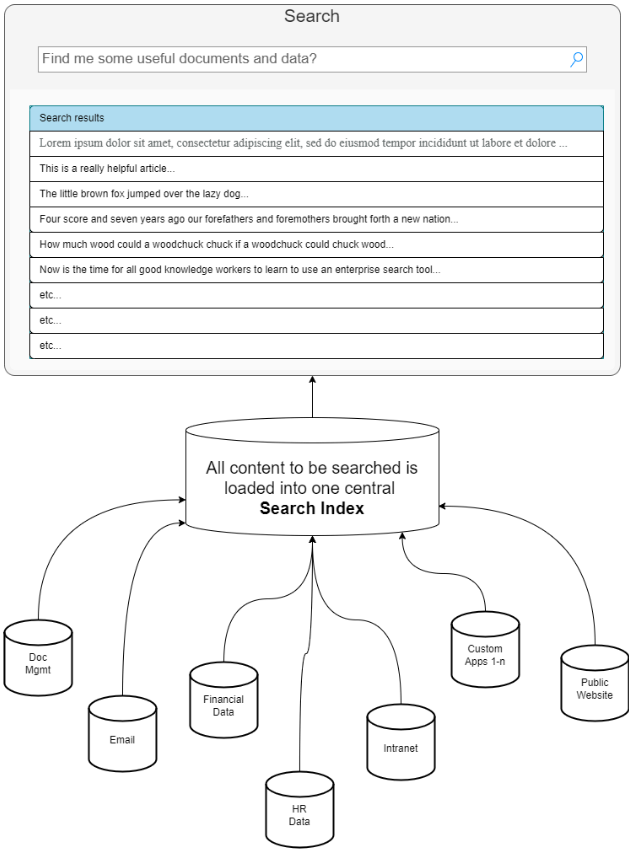
1. Each system's search is optimized for its data and function.
2. Permissioning can be more granular as it is controlled by the individual system.
3. No duplication of data.

Cons:

1. Seekers must learn many different search UIs.
2. Pulling results together across systems requires extra effort on the part of seekers or IT support.

Centralized Search

Data to be searched is added to a single index that can be searched via a dedicated UI.



Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore ...

This is a really helpful article...

The little brown fox jumped over the lazy dog...

Four score and seven years ago our forefathers and foremothers brought forth a new nation...

How much wood could a woodchuck chuck if a woodchuck could chuck wood...

Now is the time for all good knowledge workers to learn to use an enterprise search tool...

etc...

etc...

etc...

All content to be searched is loaded into one central **Search Index**

Pros:

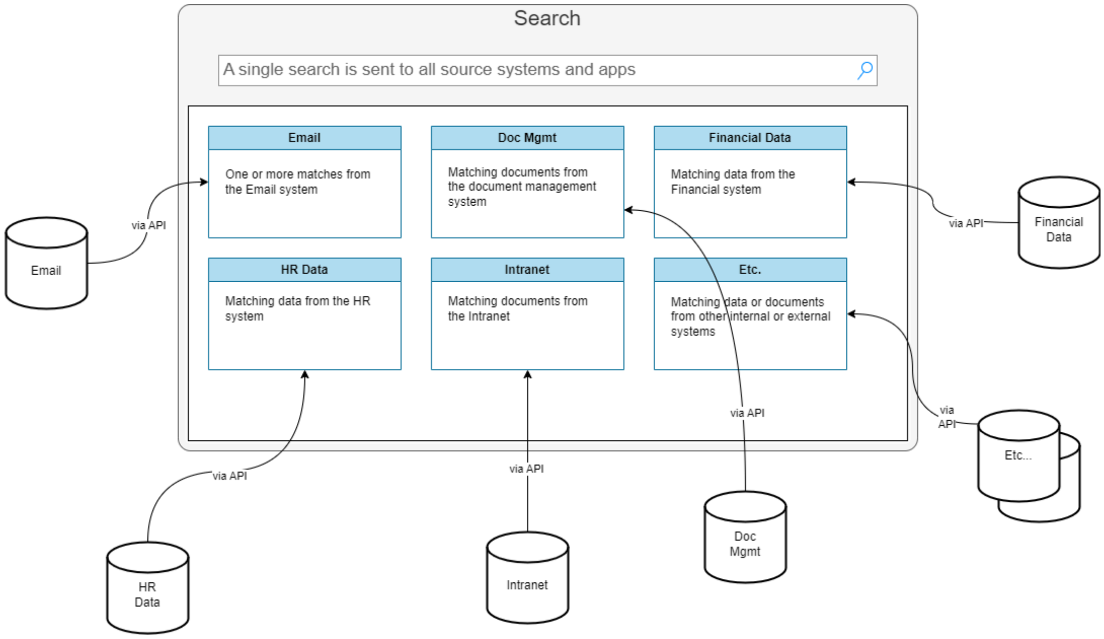
1. Provides seekers with a “single pane of glass” for finding enterprise content.
2. UI is easier to learn.

Cons:

1. Loading content from multiple systems into a single large index can be complex and time-consuming, as well as resource intensive.
2. Maintaining the index places a significant burden on IT.
3. Index duplicates data that is stored in source systems.
4. Hard to maintain permission boundaries.
5. A one-size-fits-all representation of search results.

Distributed Search

The APIs or query language of each source system are used to query that system. The results are grouped by the source system, rather than combined into a single result as with the "centralized search".


Search
A single search is sent to all source systems and apps
Email
One or more matches from the Email system
Doc Mgmt
Matching documents from the document management system
Financial Data
Matching data from the Financial system
HR Data
Matching data from the HR system
Intranet
Matching documents from the Intranet
Etc.
Matching data or documents from other internal or external systems
via API
Email
via API
Financial Data
via API
Etc...
via API
Doc Mgmt
via API
Intranet
via API
HR Data

Distributed search

Pros:

1. Provides a single search experience while allowing for different representations of data from different source systems.
2. Uses APIs to leverage system native search capabilities and security boundaries.
3. Lets seeker decide which sources they want to use.
4. Does not duplicate data already in source systems.
5. Source system handles permissioning.

Cons:

1. Only works with systems that have an API or other means of programmatic query.
2. If an API changes the associated connection to that system must also be updated.
3. If the source system uses proprietary permissioning mechanism (i.e. not Windows/Azure) then custom code may be needed to ensure permission boundaries are enforced.

AI and Search

AI and search are complementary. For some types of content, AI could be used instead of traditional search - this is particularly true for public information that is likely in the LLM. However, even in this case, it may be helpful to combine the AI-generated answers with links back to source documents using a tool such as Bing Web Search. In addition, AI could be used to augment traditional search results to provide summaries and analysis. And AI can be used to interpret natural language queries and convert them into system specific query syntax, eliminating the need for the seeker to learn multiple query formats - for example using text-to-SQL for a database source, and converting to Lucene search syntax for an Azure AI Search index.

Let's get building!