fast SBP™

Search in the Telecommunication Industry

An essential ingredient in converging markets

A business white paper

by FAST Search Best Practices
Mike Brady, Andrew Seit and Silvija Seres

Introduction

Telecommunications companies are facing the most intense transformation in their history, due to strong market convergence caused by digitalization of content, growth of online services and entrance of non traditional competitors. They race to find new business models that will maintain and protect existing customer relationships in a world where competition is coming from all directions: a city government rolling out of discounted WIFI, a cable operator offering of voice products, or Mobile Virtual Network Operators (MVNOs) in every imaginable niche category. The ability to identify, test and launch profitable services in the industry's converging landscape will determine who will win in the market.

This paper highlights the immediate and strategic benefits search technology can bring to a business competing in the telecom industry. Delivering "the right information, to the right person at the right time" is the essence to driving productivity and profitability. The profits can come in the form of delivering more personalized product offerings to customers on a mobile device, enabling next generation IPTV and VOD services or improving the back office efficiency of existing content and document management systems. Search gives the most agile players a chance to disrupt their respective markets, through better information and situational awareness, where new insights about customers and markets move business decisions to real-time.

> Search is an exciting technology that has a surprising number of strategic advantages for telecom operators.

Search is not simple a technology for retrieving information on your PC or mobile phone. This paper presents examples of new business applications and revenue models that exploit a core search capability to deliver significant advantage into a competitive market. It further outlines the benefits of how a single integrated search platform can reduce complexity through commonalities and deliver a lean operating environment for value creation sitting across existing valuable data and content.

Search is a mission critical technology for the delivery of value-added services for top-line growth and bottom-line savings. Telecommunication companies that embrace search as a tool for differentiating their business will recognize significant profit improvement today and long-term competitive advantages in the future.

Enter Search

This is the beginning of the "Age of Search." Search and search-derivative applications are becoming the de-facto way of retrieving information across different sources, customer bases and organisational units. In this digital world, where a growing number of companies admit that they are "highly successful in information creation, but far less so at its retrieval", search enables information providers to complement their existing content tools with a system that gathers, processes and distributes the right information to right people at the right time.

> Search is a the heart of helping enterprises characterise who they are and what they do.

Advanced search tools have become the best way to define one's "digital front window", highlighting the information that businesses want to bring forward, for internal and external users alike. In this sense, search is at the heart of helping operators characterise who they are and what they do. Indeed, there are many examples where search is at the core of new business models and at the base of new operational efficiencies.

The list below is a sampling of capabilities a robust search technology can enable:

- Search, Navigation and Discovery (Across Devices)
- Alert and Notification (Across Devices)
- User Group Profiling and Personalization
- Merchandising and Recommendation Engines
- Semantic Analysis
- Business Intelligence

➢Offensive Content Filter

➢Data Cleansing.

➢Brand Tracking and Monitoring

➢IP Policing

➢IT Helpdesk

➢Active Collaborative Workspace

➢Image Detection, Alert, Filter and Trace

➢Speech Detection, Alert, Filter and Trace

➢Adaptive Information Warehouse

Search is an exciting technology that has a surprising number of strategic advantages for telecom operators. Search is becoming a mainstream tool in this space, after a dozen or so inspiring success stories from early-adopting operators that have integrated search technology and transactional based applications to drive major new revenue streams and new business.

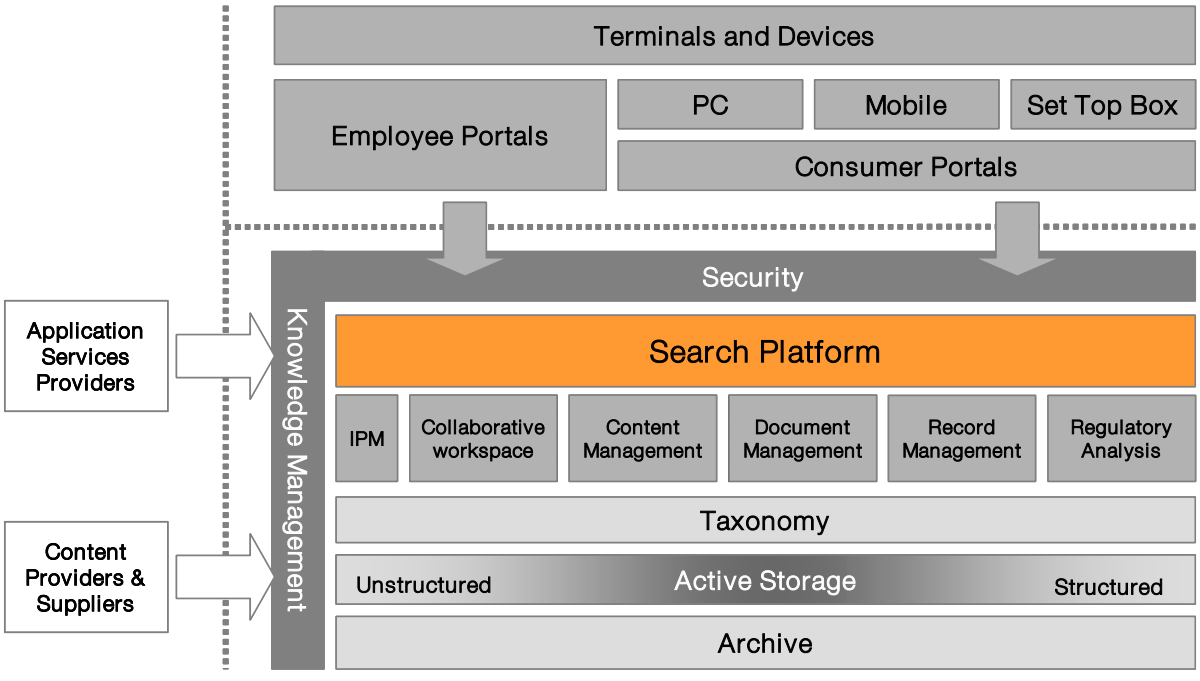
As we move from voice to data, data to content, the ability to efficiently search and deliver relevance information or content to the right person at the right time sets the pace and tempo of business and leads the industry with this advantage. In fact, Gartner has already identified this "information access technology" as the single most important technology that strings across business to derived relevant insight and create significant value from our valuable data.

Extensible Technologies for Extensible Businesses

In the telecommunications industry, good architectural principles and deep understanding of established frameworks (e.g. eTOM, OMA) have always been critical to successful integration and insertion of new infrastructure capabilities.

A high-end search platform supports and connects all of these needs from a single installation, in a scalable and uniform manner.

Enterprise-wide coordination with common goals across Business and IT is crucial in such an endeavour. There are typically many concurrent activities where documents, contents and knowledge are generated. The diversity and parallel activities often open for replication of efforts and documents. A clean searchable collaborative environment does not only bring productivity up but also reduces replication and unnecessary spillage



of resources.

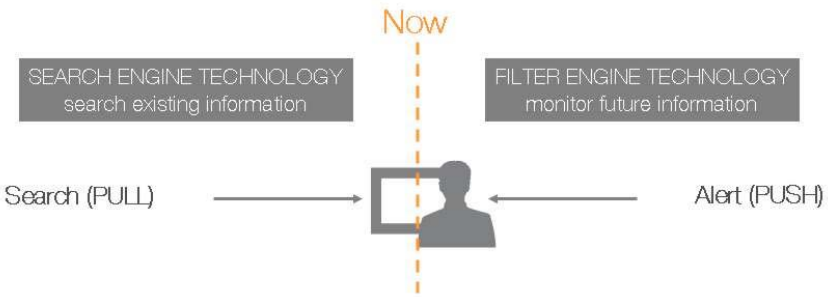
There are many affected groups, and diverging interests need to be negotiated. In the illustration below, we present an example operator enterprise where some functional groups are identified. For each of these groups, specific activities and business requirements need to be defined and analysed, and ultimately supported through appropriate technical solutions – and a high-end search platform supports and connects all of these needs from a single installation, in a scalable and uniform manner.

Architecturally speaking, the search platform introduces a layer of operating environment across the current enterprise's depository of structured, unstructured and real-time data. It provides an intelligent and efficient means of search, analysis and retrieval of relevant content from all data depositories. From a business perspective, new derivative business applications leveraging this platform's real-time search and alerting capabilities can be rapidly deployed.

A common search platform for operators is not about replacing the current infrastructure. It is about getting a better return on past infrastructure investments, better infrastructure re-use and higher levels of abstraction that create value in delivering new business applications from past investments. It also enables real-time capabilities based on a scalable solution on top of the already existing expensive infrastructure. This is an evolutionary approach to acquisition and unlocking of revenue streams through search platforms.

From Traditional Search to Intelligent Search

End users across many industries have a deep seated, but wrong, assumption that the traditional keyword search solutions, like a Google.com, will provide the ideal customer experience. The reality is that finding information, and acting on it intelligently, demands increasingly sophisticated and innovative strategies. This has been the case for at least four years.



A traditional search approach typically implies long latency from the time the data is modified until the modification is reflected in the searchable index. This means that the search engine does not handle dynamic data and may not be sufficient for processing real-time information. New search technology removes this limitation by ensuring the information is made searchable in seconds or even sub-seconds. In the new search world, the system takes this functionality further by integrating the real-time filter engine that matches information against pre-defined queries as it becomes available. This real-time filter engine then alerts end-users to the new content integrated into the system.

New search addresses information retrieval by providing more relevant results to user queries. This is achieved by:

In the new search world, the system takes this functionality further by integrating the real-time filter engine that matches information against pre-defined queries as it becomes available.

➢Relevant search – understanding inaccurate queries and returning the most relevant results for any user and any query. When possible, a direct answer should be provided for a search when it is determined that the information found will exactly meet the intention of the request. Leveraging grammatical tools, spell checking, proper name detection and synonyms is needed to express a more correct query. Results are efficiently ranked using flexible rank profiles, proximity analysis, customizable rank tuning and connectivity information from the entire index.

➢Universal search – a single, flexible search platform that improves real-time access to actionable information. It is a brilliant alternative to the high costs and inefficiency associated with using multiple application-specific search and retrieval products across the enterprise. It allows a wide range of activities to be executed within a single search and retrieval architecture and presents a single, powerful alternative to the common practice of implementing separate search functions for databases and applications, enterprise information search, Internet search and eBusiness.

➢3-D scalability – the core architecture is designed to be infinitely scalable along three axes: number of users, volume of data and freshness of data. No matter how fast the information volume grows, search scales to support millions of simultaneous users – submitting thousands of queries per second – searching terabytes of data, while still delivering sub-second responses. Real-time indexing and alerting features allow operators to use high-speed search as the foundation of a wide range of applications.

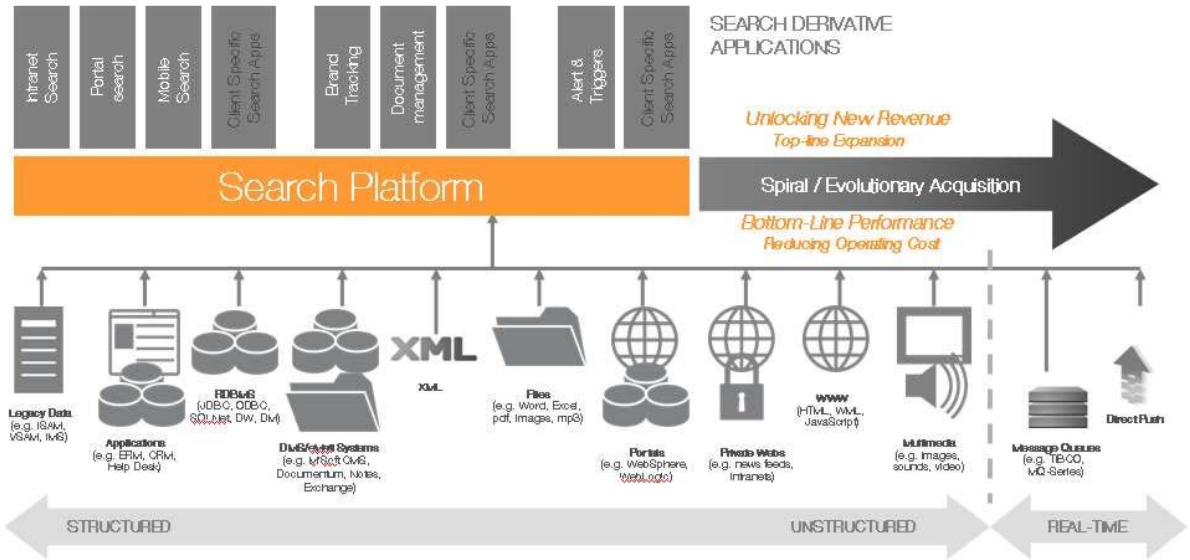
Building a Search Roadmap

What does it take to provide consistently superior search results—those that connect the searcher to the right information in the shortest possible time—under infinitely variable circumstances, expertise, and objectives?

Primarily, it requires a well-conceived and well-executed operational framework of process, analysis, and delivery. A platform should blend mutually reinforcing technologies such as Natural Language Processing and other sophisticated linguistic tools into a streamlined, multi-dimensional environment. It can thus capitalize on the strengths and neutralizes the weaknesses of each. The result is a highly accurate, comprehensive capability that connects users to the information they seek, even when they're not sure what they're looking for or how to ask for it.

A well thought out search roadmap should include evolutionary acquisition strategy that will allow for exploiting immediate opportunities, while planning ahead for next generation services.

Search technology can impact many parts of a telecom operator's business. A well thought out search roadmap should include evolutionary acquisition strategy that will allow for exploiting immediate opportunities such as selling more personalization content over a mobile device, while planning ahead for next generation services such as social networking and IPTV search capabilities. In parallel, the search roadmap should address internal, back-office needs around content management, customer service and business intelligence, to name a few. A coordinated effort which minimizes overlaps and duplication while exploiting the commonality is necessary to focus effort on value creation and not on development



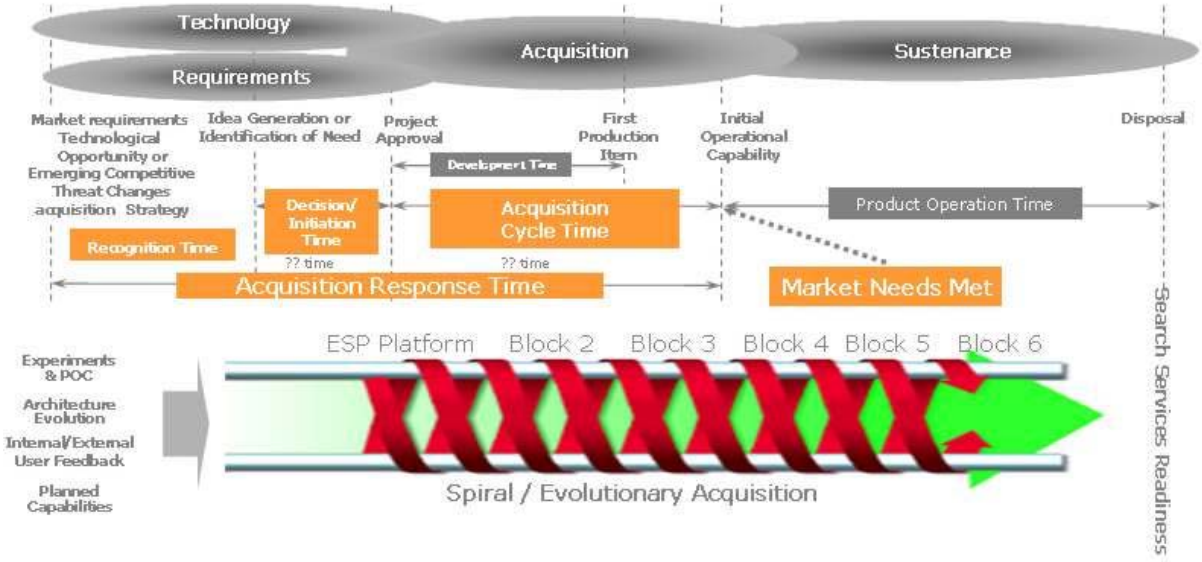
and deployment of multiple stovepipes across the company.

An evolutionary acquisition of capabilities allows an alignment to the market triggers and business requirements; it also provides a sound framework for a roadmap that provides different domain capabilities on top of the common platform.

This type of flexible architecture will be a critical component for success in the converging telecommunications industry.

A clear business driven technology roadmap, synchronized across business functions and executed in an evolutionary acquisition and deployment manner, has been proven to deliver the best results. An evolutionary technology roadmap (figure below) supports a business driven strategy that ties together the three basic questions of When, Why and How.

This platform approach accelerates acquisition of new capabilities and provides recurring improvements to the system.



One of the cornerstones of a competitive strategy is the *ability to rapidly insert, deploy and extract services and applications*. Capital investment should pay back, many times over. But, as solutions get deployed, the challenges of further development of new features, support of requirements changes and the continuous maintenance of the solution, through upgrades or upkeep, come into play. When in-house stovepipes are developed and deployed, home-built or one-off solutions quickly show their expensive side: the sustenance is economically unattractive for a rich strategic platform.

One of the cornerstones of a competitive strategy is the ability to rapidly insert, deploy and extract services and applications.

Architectural Considerations

In order to control the costs and risks associated with continuous system evolution, some principles must be implemented in constructing a search strategy:

➢Prioritize simplification and developing manageable interfaces above bringing forward early functionality. The principle is that building and integrating functionality that is not mature will be expensive and divert attention from producing sound solutions.

➢Use of a common search and alerting platform approach whenever possible to exploit economies of scale, and leverage on common knowledge pool of best practices.

➢Evolutionary acquisition of capabilities, rather

than building new ones from scratch, in order to transfer more of the maintenance burden onto vendors. This mainly applies to discrete functions/modules that can be purchased and integrated into the current search platform to extend its functionality.

➢System integration effectiveness, where end-to-end performance of the search-based applications or derivatives is critical to customer satisfaction. The number of interfaces and resultant call flows must be simplified, resulting in a common look and feel.

➢Move toward n-tier architectures, which promise to increase transparency and re-use by treating the enterprise's IT systems as a whole, rather than a series of stovepipes.

➢Aim to minimize the total cost of ownership, rather than the up-front acquisition cost, when procuring new systems.

Conclusions

Technology driven convergence is changing the business models of stakeholders across a myriad of industries. With convergence of wired and wireless services into a common IP world, digital content (music, picture, games, documents, maps etc) is replacing the traditional sources of revenue growth. Disruptive applications such as VOIP (voice or video over IP) and the churn battle have globally eroded the revenue streams and accelerated the value migration into other new business models. The many years of stable billing relationships with customers, previously considered impenetrable for others, are now being fundamentally put to the test.

With the catalytic effect of convergence, players across the telecommunications value chain are struggling between holding on to their old revenues while preparing themselves for a rapidly changing marketplace. The ability to identify, test and implement products and services to create new value fast enough to re-capture the value lost due to emerging competition, changes in regulation, influences in the market will determine who remains viable in the long-term.

The new value is primarily to be extracted from data content services, and the first step to unleashing it is by making this content easily accessible to consumers. No single technology can provide more benefits to an operator than search.

The return on investment in a world class search strategy is measured along two axes: improvements in operating efficiency and increases in revenue, and agile telecom players show persuasive examples of both. It has given them a single integrated platform across the whole information space, a lean operating environment for value creation across existing valuable content. It has provided them with tools for disruption of their respective markets, through improved content services and better information and situation awareness, using insights about customers and markets to move business decisions to real-time.

As Google continues to grow from a small start-up in the Silicon Valley to the most recent addition to Standard & Poor's 500 Index, financial markets will have to reward operators that embrace search as part of their business DNA. Search is not a technology to be taken lightly, but rather a technology that enables a business to operate with greater flexibility and profitability, now and into the future.

About FAST SBP™ (Search Best Practices)

SBP consulting is a highly focused transfer of search knowledge and experience from FAST to its prospects and customers. SBP workshops aim to help enterprises realize the full potential of search, by creating optimal strategic, functional and technical roadmaps, delivered in the form of business model, solution and architecture designs.

For any feedback or questions related to this paper, please contact us at sbp@fastsearch.com

FAST
www.fastsearch.com
info@fastsearch.com

Regional Headquarters

The Americas
+1 781 304 2400

Europe, Middle East & Africa (EMEA)
+47 23 01 12 00

Japan
+81 3 5511 4343

Asia Pacific
+612 9929 7725

SWP.018.B.01.032906