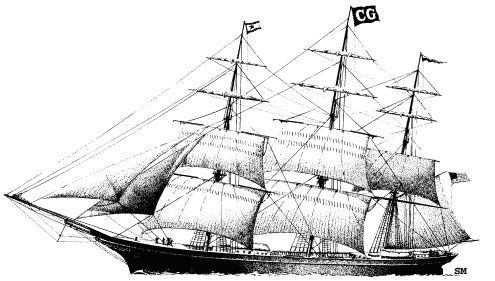
THE CLIPPER GROUP
Navigator™



Navigating Information Technology Horizons℠

Published Since 1993 Report #TCG2007082 August 17, 2007

When Your Life Depends On It — Inxight Federal Systems Enhances Military Intelligence

Analyst: Anne MacFarland

Management Summary

The technical requirements of Military Intelligence efforts have never been more demanding. War has long ceased to be a formal affair with a well-understood choreography. There is no front line. The list of enemies changes, and their identities are more malleable than ever. And, in many cases, war fighters are co-mingled with people who may or may not be friendly, far from home, in a terrain that is not entirely familiar. Command posts travel with the military units, and communications, while pervasive and encrypted, are limited in bandwidth. The endpoint where the actionable information must arrive is a PDA. Getting the right information to the right people at the right time frame faces many constraints. The push of information must be small and tightly personalized to the location and the role of the recipient.

A body of relevant information of relevance, of course, does not come that way. It comes from a myriad of sources, some more trustworthy than others. It is collected by a number of systems. A single information source tells you little. It is the consensus and patterns that can be derived from the aggregate information that are helpful. Each source must be analyzed for trustworthiness and relevance and then aggregated to provide situational awareness. Maps and images display information in a useful form. That information must be pushed soon enough to be useful to the people who need it. Moreover, the aggregate information also must be queryable by field forces who need more particulars.

A variety of capabilities is needed to turn the information gleaned from all these sources – from scuttlebutt to sensors – into actionable information. Inxight Federal Systems, a subsidiary of Business Objects[1] with a heritage dating from the Xerox PARC that provides search and a variety of text analytics and visualization products to a global customer base. In the military intelligence space, in conjunction with partners, Inxight Federal Systems' products act as a process hub that extracts entities and metadata and produces locally-relevant information to meet the needs of troops deployed in various war-torn areas. The Inxight platform can be enriched with partner capabilities to present specific kinds of capabilities and analysis that are needed in a particular situation.

The extreme parameters of the military use of information will resonate with those in business situations where competition is no longer a discrete list, and where the biggest threat may come from outsiders who redefine your market. For more details, please read on.

IN THIS ISSUE

[1] Business Objects will offer the Inxight products to commercial enterprises.

From Information to Intelligence

Step One: Glean All the Metadata Possible

In situations where you are trying to predict what will happen tomorrow, no source of information can be discounted as unimportant. This is not a situation where you are shopping for the *best information* as you would a new suit. Instead, you use all possible sources of information, evaluating it for quality of course. Website screen scrapers must capture not just the presentation, but the markup language or *AJAX* behind it. For important targets, U.S. Forces are developing what they call Persistent Surveillance – multiple layers of sensors that can linger on demand to gather profuse information. In such a situation, resolution of focus and a variety of sensors including micro-machines are important. Your information comes in many forms. Your intent is to build a cohesive scenario of what is happening. Relying on history is not good enough. Therefore, you gather all kinds of information about the stakeholders in the situation that you face.

The next step is to add structure to the information by extracting entities (people, places, events, etc.) from the text, and documenting relationships between those entities, as metadata. This extraction must be able to deal with slang, emoticons, and truncated words. It must be done in the native language – too much is lost in translation. Then this metadata[2] must be evaluated and corrected, for quality and trust are of great importance. This metadata will be bulkier than the original text, and will only become more so as it is analyzed.

The metadata, and the metadata annotations by analysts, must be shared in a secure but timely fashion. From this expanded metadata, subject categories may be derived (*column* equivalents) that allow applications to perform analytics "as though it were structured." Then, the metadata is persisted in a repository of choice.

Step 2: Usable Metadata

From here on out, deriving intelligence is mostly about metadata – the data is just a back-end reality. Metadata becomes of primary importance because intelligence to be used for planning is more about the patterns of information, and the relationships indicated by those patterns, than about a single instance of information. Like database data, where a single value is informative but a sequence of values is much more so, intelligence information gains value from the aggregation – even if (often particularly if) most of the sources say the same thing. The burgeoning of rumor, the changes in what is said and what town it is said in all matter.

This focus on the metadata also protects the sources of the information.[3] The metadata must be actively managed, both in detail and as collections. It must be consolidated for statistical and social network analysis. Co-occurrence of entities and artifacts can be meaningful, but meaning often must be derived, not assumed. Such careful, thorough analysis, together with horizontal synthesis and geographic filters, puts all points of information into a context that will reveal a storyline, not just a bunch of attributes.

Step3: Push it back to the Field

In military situations, there are reasons for pushing out only what is needed. Logistics demand that the

[2] Metadata must be standards-based.

[3] A link is retained should re-analysis become useful.

Inxight Federal Systems' Products

Initially, Inxight Software was known for its Star Tree visualization of information sources. This aggregate view of information instances and the patters of those instances is very congruent with a need to learn the patterns blossoming information about an entity or event that are significant that characterize military intelligence, and competitive analysis of any sort.

The Inxight Federal Systems product line has a rich heritage of tools, available as server-based solutions or as software development kits. Open APIs and XML-out consistency makes them easy to integrate with other products.

Federated and Desktop Search

- *Inxight SmartDiscovery Awareness Server* for federated search, Inxight *SearchExtender for Google Desktop* for desktop search.

Text Analysis

- *Inxight SmartDiscovery Extraction Server, Inxight Categorizer,* and *Inxight Summarizer* are based on a rich set of linguistic tools.

Data Cleansing

- *Inxight SmartDiscovery Metadata Management System* combines text extraction with human review.

Visualization

- *InxightVizServer* includes *Star Tree, Time Wall*, and *Table Lens* (see below).

Products sold by others as part of joint solutions

- *Inxight LinguistX Platform,* a multi-lingual natural language processing engine.
- *Inxight Thingfinder leverages Natural Language to extract over 25 entity types. A SDK permits more customization.*
- *Inxight StarTree* visualizes large numbers of objects and the relationships between them.
- *Inxight TimeWall*, a 3-D timeline tool for event analysis and decision making.
- *Inxight TableLens*, a tool to visualize tabular data in full detail to exposer relationships and trends.
- *Inxight Summarizer* abstracts a document in under a second.

Source: Business Objects

end-user device be something like a PDA, with limited local storage. Security demands that, even with encryption, information not be exposed to risk unnecessarily.

The ability for a war fighter to pull more information as needed is also important. They are the only ones who know what they need. The portal/thin-client approach has many virtues in this kind of situation. RSS is the primary publication vehicle. Maps are particularly useful – but transmission of graphics presents some challenges. A careful risk/benefit analysis must be made of what is kept locally on the PDAs and what is pushed to them.

Military Intelligence Challenges

Shortening the Military Intelligence Cycle

The need to know has never been less than immediate in the military, and one focus of the IT systems they have developed has been meeting the need for immediacy. Their strategy taken has broken down into four fairly obvious steps.

1. Optimize the sensor/satellite data collection. Wikis and blogs for and by war fighters are other sources of information.
2. Optimize the assigning of incoming data into situational buckets and extract the most information (metadata) from the data
3. Analyze the derived information to give the fullest picture of what is happening and likely to happen.
4. Translate this information into visualizations and other formats that help both local and strategic decision-making.

The result of all of the above has to be pushed to PDAs in a way that does not jeopardize security, should the PDAs be captured.

For its military customers, the Inxight Federal Systems platform acts as the hub that optimizes the pipeline from searched information to intelligence. Because of its open APIs and standardization on XML, customers can add on more functionality to fit their situation. Even when optimization is a priority, completeness of functionality is also very important.

Keeping the Back-End Data Warehouses Agile

The entity databases in a war situation are huge. To address threats, you need effective and exhaustive entity extractions. Ninety percent of the entities present no problem – but the others, which are usually ones you are particularly interested in, are more difficult to document. The immediate need is for advice, not for knowledge building.

Additional analysis to build situations into broader knowledge continues behind the scenes. Some information may be re-analyzed as new situations develop. All this data and metadata accretes to vast data warehouses that must be kept prepared for rapid response.

Fostering Collaboration AND Security

Promoting collaboration in peacetime is hard. It is much harder in organizations where paranoia is a survival characteristic, and in arenas where there are no walls or locked doors to separate the *good guys* from the *bad guys*.

With the inherent need for a federated approach to intelligence operations, and the need for speed to actionable information, security must be built into the system from the beginning. These intelligence systems must extend security to deal, not just with internal threats, but also with latent predators that may infest the IT system. The concern is not just that the system will crash, but that it sill stay up, but the information in it will be compromised.

Conclusion

What are the stresses peculiar to this military intelligence business? One is the extent of entity extraction and analysis. Another is the granularity of the reporting, for soldiers need to know about the local threats. Then there is the variety of input channels – the bandwidth limitation – the security – the push to get information to the field in time, and the life-or-death need to get it right every time. All of these requirements are far more stringent that those found in most commercial enterprises – but none is unfamiliar.

In many industries, what used to be a well-orchestrated battle between titans and a set of skirmishes between smaller contenders (like the wars of old), has become a multi-vector free-for-all, with outsiders taking market share in unexpected chunks by unusual methods. Incremental changes based on historic strategies may not be enough to keep the business on track. Your traditional scope of competitive intelligence may now be too narrow.

The internal workings of organizations these days often could use some form of organizational intelligence. Most stakeholders (not just bosses) now need to be informed not just on the local situation. To leverage expertise or foster collaboration, they need to know, or be able to find out what's out there. They need situational intelligence. Intelligence by osmosis, even aided by collaboration, may not be effective enough.

The information glut that faces all enterprise stakeholders is not consumable in useful detail without a lot of work. Business Objects bought Inxight (including the Inxight Federal Systems subsidiary) for its products that the capabilities to make unstructured information fit the needs of those who would use it. If you need a better handle on the kinds of information that might help you win your next battle, their products can help you.

About The Clipper Group, Inc.

The Clipper Group, Inc., is an independent consulting firm specializing in acquisition decisions and strategic advice regarding complex, enterprise-class information technologies. Our team of industry professionals averages more than 25 years of real-world experience. A team of staff consultants augments our capabilities, with significant experience across a broad spectrum of applications and environments.

- ***The Clipper Group can be reached at 781-235-0085 and found on the web at www.clipper.com.***

About the Author

Anne MacFarland **is Director of Data Strategies and Information Solutions for The Clipper Group.** Ms. MacFarland specializes in strategic business solutions offered by enterprise systems, software, and storage vendors, in trends in enterprise systems and networks, and in explaining these trends and the underlying technologies in simple business terms. She joined The Clipper Group after a long career in library systems, business archives, consulting, research, and freelance writing. Ms. MacFarland earned a Bachelor of Arts degree from Cornell University, where she was a College Scholar, and a Masters of Library Science from Southern Connecticut State University.

- ***Reach Anne MacFarland via e-mail at Anne.MacFarland@clipper.com or at 781-235-0085 Ext. 128. (Please dial "128" when you hear the automated attendant.)***

Regarding Trademarks and Service Marks

The Clipper Group Navigator, **The Clipper Group Explorer**, **The Clipper Group Observer**, **The Clipper Group Captain's Log**, **The Clipper Group Voyager**, **Clipper Notes**, and *"clipper.com"* are trademarks of The Clipper Group, Inc., and the clipper ship drawings, *"Navigating Information Technology Horizons"*, and *"teraproductivity"* are service marks of The Clipper Group, Inc. The Clipper Group, Inc., reserves all rights regarding its trademarks and service marks. All other trademarks, etc., belong to their respective owners.

Disclosure

Officers and/or employees of The Clipper Group may own as individuals, directly or indirectly, shares in one or more companies discussed in this bulletin. Company policy prohibits any officer or employee from holding more than one percent of the outstanding shares of any company covered by The Clipper Group. The Clipper Group, Inc., has no such equity holdings.

Regarding the Information in this Issue

The Clipper Group believes the information included in this report to be accurate. Data has been received from a variety of sources, which we believe to be reliable, including manufacturers, distributors, or users of the products discussed herein. The Clipper Group, Inc., cannot be held responsible for any consequential damages resulting from the application of information or opinions contained in this report.