

Versaterm Crime Analysis Direction

Introduction

For years, Versaterm has been grappling with the challenge of finding the right solution mix for our product's Crime Analysis features, somewhere between the simplicity of the Versadex Browse capabilities and the power of a full data mart. To learn more we reviewed various Crime Analysis products on the market today and found that many of the products available today met the simplicity target but had very limited capability to extend beyond a quick map or spreadsheet view of the data. It really wasn't much more than better integration between Versadex Browse and a few desktop applications. We understood there was a need to have a more "grown up" solution given that many of our larger customers had built or were in the process of building data marts (with assistance from Versaterm) to enable very complex and in-depth crime analysis and administrative/ operational workload analysis.

In reviewing our choices, we (ideally) wanted to offer a base Crime Analysis product that all of our customers would be able to use, but could in fact be extended to a very tailored local solution for those customers with the resources – they could use Versadex as the *starter kit* or *foundation*. In reviewing toolset choices to build a more complete and integrated crime analysis component, we then studied what others were doing. By far the most "famous" of crime analysis programs seems to be New York City's COMPSTAT which has been copied and used by a wide variety of police organizations across North America. The underlying toolset - Cognos Business Intelligence Suite - is used to analyze all of the information and present it in a digestible manner. Therefore, the Cognos toolset seemed to be the logical choice for a closer review while, as it turned out, several of our police customers already use Cognos tools or they were already a City standard. Cognos is a dominant player in the multi-billion dollar Business Intelligence market.

Recent Evaluation Activities and Findings

In reviewing what Cognos offer, we chose Cognos PowerPlay as the core analytical tool. PowerPlay uses statistical "cubes" of data to present high level analysis reports while supporting a near limitless "drill down" and "drill-out" capability to any level of detail. As our staff were very impressed with the power yet simplicity of the tools, we arranged to collect some real customer crime information and built several such "information cubes" with supporting PowerPlay reports. We then created a number of *question scenarios* that could be used to expose and train people in its use, supporting it with a focus group where we brought together a number of (from our customer base) Crime Analysts and Management staff to evaluate the suitability of this approach to their Crime and Administrative Analysis needs. If found suitable, it would be used to assist us in developing detailed requirements for a first Crime Analysis product offering (a core) based on Cognos tools and data cubes.

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After 2+ days of exposure and discussion, we were unanimously encouraged to pursue this Cognos based crime analysis component and were given a number of guidelines and recommendations to be reflected in *version 1*. The reaction to the possibilities was so strong, that we had confidence to now “forge ahead” with this project. Several of these requirements may be of interest (to you), since they were certainly not obvious to us (in the beginning):

- The focus group stressed the absolute need to be able to “drill-down” to the underlying data (i.e. the specific cases) since, so often, the crime pattern aberration that is highlighted is actually caused by errors or bad data (coding, etc.); a big jump in crime counts must first be confirmed as being actual, before raising it internally for action.
- They also stressed the need for an underlying “data mart” database that did not contain any sensitive information (names, text, specific DOBs, etc.) so that Versadex level security controls could be waived; that incident based database also had to be “insulated” from Versadex release database changes so that Crime Analysis cubes and customer developed reports were not impacted by subsequent Versadex releases. It also had to have x-y coordinates to allow it to also be easily used for pin mapping and other spatial uses.
- Of particular interest was the need to be able to quickly and accurately explain why a statistic or crime count had changed from last month; the ability to generate the same historic counts or be able to credibly explain the differences (UCR code changed, another victim died, old case cleared, etc.) was stressed by the group. The credibility of the entire Crime Analysis offering may hinge on our being able to clearly identify and track what has changed to previously reported/counted data.
- The Data Mart database must be presented in a much simpler to understand and access form than Versadex and must be accessible from desktop programs using ODBC (which most desktop tools support). We freely recognize the Versadex database is complex to support the operational requirements while enabling performance, capacity and expandability under 7x24 workloads - the Data Mart should not have those constraints – it should be a simple reporting database.
- For many of the fields in an incident, the translations as well as the field values need to be represented in the Data Mart (thus greatly simplifying report creation).
- Many fields need to have a hierarchy or code “grouping” defined for them to facilitate comparative reporting (felony/misdemeanor, crime categories, UCR and finally extension; or, age groups such as <15, 16-21, or time in shifts, hours and then minutes, etc.); these grouping or “bins” need to be user definable.
- And, they confirmed that most customer agencies do not have the manpower to apply COMPSTAT as New York did. Rather, they want a PowerPlay report that can be automatically run weekly that then measures changes in crime activity at both high level category and also by specific crime type and produces an exception report that only highlights the detected changes outside defined “norms”. Also, each customer must have the capability to uniquely define the rules and values to be used to define “norms”.

Versaterm had some constraints as well; if the Crime Analysis offering was to be available to every customer, then the base offering could have next to no actual additional cost to our customers. Accordingly, we have selected a no-cost and “open source” database (PostgreSQL) for the data mart database. PostgreSQL is available for all major platforms: Windows, Linux, Unix, etc. so will provide flexibility. We then negotiated a special OEM agreement with Cognos where we can embed PowerPlay and Impromptu (end user report writer) into Versadex at a substantial discount. As a result, Versaterm is prepared to provide a limited set of Cognos tools, the database and the core set of cubes and reports at no cost to our customer – they are part of the annual enhancement release! The customer will only need to supply a modern Windows based workstation (~10 GB of available disk space) for the data mart and Versadex crime analysis components. It could in fact co-exist on an existing PC used by the analyst today.

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Where are We Today?

We have started building our initial “beta” core product and this will be installed in Salt Lake City by end of March 2005. We have selected the Salt Lake City Police as the US “beta” site because of their long experience with Versadex and their IT-aware Crime Analyst. We expect a 4 month refinement cycle before we can begin to roll out the core toolset to others while supporting it in the US Versadex 7.1 release. Once complete, we will begin a Canadian beta test, reflecting our experiences, which should be in the latter half of 2005. Much of the Canadian support for the crime analysis component will be based on the Canadian RMS release development cycle. The Ottawa Police Service have offered to be the Canadian “beta” site – they already have extensive expertise using the Cognos tools. We would then anticipate that wide spread rollout to occur in 2006 as part of the Canadian RMS 7.1 release.

The following (Figure 1) illustrates a PowerPlay report where all robberies, by location type, are being compared. The data cube is built using “data dimensions” where the user can easily drill down to see what is “behind the number” (e.g. breaking down by district or breaking down Q2 by months as shown below). Other “dimensions” include area or districts, time of day, weekday and even weapon involved to name a few.

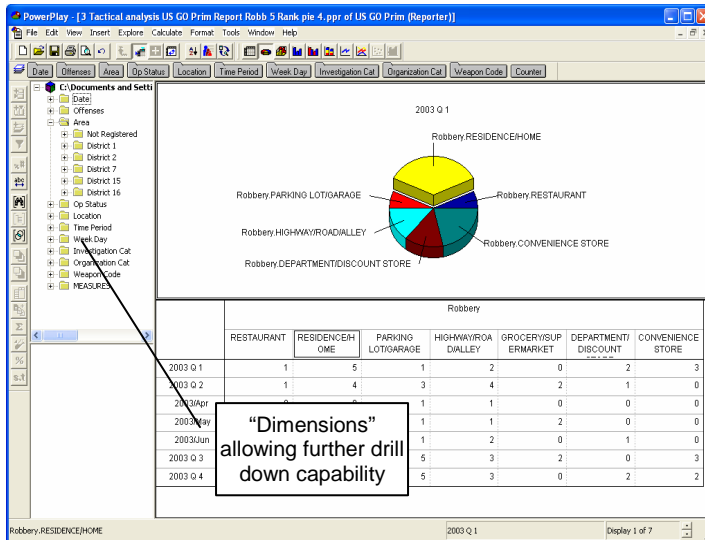


Figure 1

What will the Initial Release (core) Consist Of?

First, we will supply a data mart database made up of a defined PostgreSQL database supported by documentation and the Versadex data transformation tools to extract data from the Versadex database (a scheduled task at your selected update frequency) and load the data into the data mart database. Versaterm will work with your local crime analyst and/or technical person to configure the Crime Analysis component.

Second, we will provide a limited number of copies of PowerPlay and optionally Cognos Impromptu (a report writer required to drill-down to the underlying cases). Cognos Transformer, a special application that builds the data cubes from the data mart, is supplied with PowerPlay.

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Finally, Versaterm will provide several Transformer “models” (used to generate the “data cubes”) and several PowerPlay “drill-down” Crime Analysis reports, which can be run and modified by the Crime Analyst (or others inside your organization). We can expect additional data cubes (Transformer models) to be made available as more and more users build and tailor to their specific needs (analyzing specific crimes, etc.). We expect this Crime Analysis module to become a seed for *best practices* between organizations where models can be shared easily.

Figure 2 provides a high level schematic of the Versadex Crime Analysis component environment.

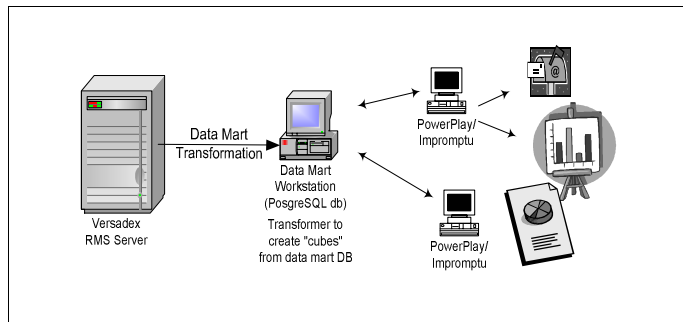


Figure 2

Versaterm is very excited at the new offering and very pleased that we can deliver it at no cost – it is part of your support agreement!

What Extensions Can You Make to the “Core”?

The base or core Crime Analysis component permits customers to run the PowerPlay reports that Versaterm provides, and either print these reports and/or transform them into HTML suitable for posting on an intranet/Internet, for example. Customers with appropriate training can further generate other PowerPlay reports against the “data cubes” provided by Versaterm, or even generate their own “cubes” for different reporting focus. Given the open nature of the data mart database, customers may also choose to use other desktop applications such as ESRI, MapInfo, Excel, Crystal Reports, etc. to directly access the data mart database and produce other reports or outputs. The core Versadex crime analysis offering provides a lot!

Customers may also purchase additional copies of PowerPlay, Impromptu or other Cognos tools (e.g. ReportNet) to further extend the reporting capabilities across the organization. Customers could in fact purchase an enterprise, web server based, copy of PowerPlay or ReportNet to support an enterprise, but centrally managed, reporting tool. All of these extensions/products are off-the-shelf Cognos products and are widely used by thousands of businesses globally.

Further, the data mart data can be extended to include other data sources from other city databases (e.g. personnel) to provide a more enterprise view of the information. Again, Cognos provides a tool to transform/migrate data from multiple sources into a single data mart.

So Versaterm is providing the “footing” which, we expect, will satisfy a significant portion of the crime analysis needs. However, if it does not, then this can be the beginning of something much larger allowing the Customer to extend and grow the analytical component.

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Conclusion

As discussed in a previous Newsletter issue, Versaterm assumes the responsibility to preserve our customer's investment in the Versadex product line by assuring that it evolves to sustain its modern compatibility and capability. But, we also strive to regularly *add value* to the product and, we believe, providing such a modern and powerful data mart with a crime analysis component, as an enhancement, is a good example of our focus and dedication – our “partnership with our customers”.

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