



Australian Government
Australian Transaction Reports
and Analysis Centre



goAML Evaluation Report



UNITED NATIONS
Office on Drugs and Crime



UNODC
SOFTWARE

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1. Executive Summary

The United Nations Office on Drugs and Crime's goAML system is a comprehensive integrated solution to specifically address the requirements of Financial Intelligence Units (FIUs). The goAML client provides a user-friendly, feature-rich environment for users who are familiar with Microsoft Windows™ applications. The base functionality of the client is considerable and impressive, enabling the users to ask almost any question of the underlying data. Although not all features of the system were ready to be evaluated by AUSTRAC and FINTRAC, the core features of the product appear to fulfil many of the requirements of an FIU.

The question to be answered by this evaluation was: is goAML a suitable solution for Financial Intelligence Units? The answer to this question is a conditional yes; FIUs considering goAML should take note of the various issues raised in this report and carefully consider requirements specific to their jurisdiction.

The benefits of goAML are apparent from a number of perspectives. As an integrated solution, users can focus on performing their core tasks, rather than spending time manipulating and exporting data to be used in third-party tools such as report writers, charting and graphing tools and document management systems. IT Operations have less procurement, licensing and support issues since they are dealing with a single product.

The goAML system would currently be best suited to FIUs:

- which expect small-to-medium reporting volumes (AUSTRAC/FINTRAC estimate up to 10,000 reports per day given a single-server configuration¹) of cash transaction, domestic wire transfer and suspicious transaction reports
- which primarily accept electronic submission of reports, although there are both web-and client-based manual data entry options
- whose reporting institutions are mainly traditional financial institutions, i.e. banks, which have the IT capability to perform report/transaction extraction to conform with goAML's reporting requirements (XML schema)

FIUs with existing data collections will need to devote significant resources to a data migration project and the time and cost for the data migration phase should not be underestimated.²

FIUs wishing to provide access to goAML to partner agencies need to consider the issues raised in the relevant section of this report.

There remain a number of challenges with respect to goAML:

1. The ability to support the wide variety of data collection requirements and report types for different jurisdictions
2. Where a customer FIU or jurisdiction has limited or no IT capability, the support model will require access to the recipient FIU's system. The political and security issues surrounding this arrangement will require careful consideration.

¹ Although not evaluated by AUSTRAC or FINTRAC, UNODC has commented that a clustered configuration would increase performance and that in a production environment a clustered configuration would be scaled to match the expected system load.

² UNODC has commented that data migration does not form part of the goAML installation process and must be approached as a separate project. UNODC has extensive experience in data migration projects and is able to provide, at cost, technical assistance and training to local IT personnel to facilitate this process.

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3. Development of functionality to deal with situations where data quality is poor or not up to the standard preferred by goAML
 4. Performance issues which may affect the ability to process a high daily volume of reports, which will in turn affect the timeliness and effectiveness of intelligence

Despite this and given the UNODC's track record with the National Drug Control System (NDS) it is in the strong position of being able to provide a tailored and integrated solution to, as well as global support for, FIUs worldwide.

The further development of goAML could be enhanced by the cooperation of FIUs at the international level by contributing to the identification of requirements and development of enhancements. The challenge for the UNODC will be managing the different jurisdictional requirements and versions that will result versus maintaining a reliable and stable platform for all stakeholders.

goAML can be considered a valuable contribution to the FIU software and systems solution space. As with any significant software acquisition, an FIU will need to conduct a detailed evaluation to ascertain whether goAML meets the FIU's requirements in terms of its:

- data model
- data collection standards
- infrastructure model
- technology stacks
- support model

2. Recommendations

1. Consider establishing a working group to provide feedback, inform on future features, gather requirements and utilise best-practices and knowledge from stakeholder FIUs
2. Implement a feature freeze for (once already advertised core features are considered complete) and work on quality assurance
3. Improve system and installation documentation
4. Improve documentation on report formats, for example, the conversion of SWIFT MT103 messages to goAML format
5. Improve testability for on-site and system operational readiness
6. Provide explicit support for cross-border cash and BNI reports
7. Create web-based and client-based forms for each report type to aid data-entry
8. Conduct a survey of reporting requirements for candidate jurisdictions to assess how well goAML can accommodate different data collection requirements
9. Implement a registry for common and jurisdiction specific data identifiers and codes to allow for easy lookup, exchange and integration of report data for FIUs using goAML
10. Develop a framework to enable the easy creation of online versions of paper forms for the different report types from candidate jurisdictions

3. UNODC Response

Following the evaluation UNODC has provided commentary on the findings as well as information on features of goAML not available at the time of the evaluation. The commentary and additional information can be found at the end of this report in "Annex to Report: UNODC Response".

4. Introduction and Objectives

In May 2008 AUSTRAC, FINTRAC and the UNODC signed an agreement whereby AUSTRAC and FINTRAC agreed to conduct an independent, fully self-funded evaluation of goAML on behalf of the Egmont IT Working Group.

The objective of this evaluation is to assess whether goAML is a suitable product for use by FIUs. Candidate FIUs are those which are in need of an IT solution but do not either have sufficient resources to develop their own in-house systems or the time or funding to survey the market and procure a range of products to meet their particular requirements.

goAML is promoted by the UNODC as a “one-stop” FIU-specific IT solution, designed to run the entire business of an FIU. UNODC advertises fourteen key features³ of goAML:

1. Data Collection
2. Data Clean Up
3. Ad-hoc Queries and Matching
4. Statistical Reports on Reports Received and Processed
5. Structured Analysis (Strategic and Tactical)
6. Profiling
7. Rule Based Analysis
8. Workflow System
9. Task Assignment and Tracking
10. Document Management (with full text search)
11. Intelligence File Management System
12. Integration and/or Data Acquisition from Other Sources
13. Charting and Diagramming
14. Intelligence Report Writer

AUSTRAC and FINTRAC evaluated each of the available features (not all features were present in the version that was supplied), along with server installation procedures, client deployment, documentation, quality assurance, basic performance and the support model.

5. Installation

5.1. *Server*

Initial installation at AUSTRAC of the database and web/application servers was completed successfully in approximately 5 hours, which was due to the majority of installation issues having been addressed during the UNODC’s prior visit to FINTRAC (where the initial installation was completed in 2.5 days). Post-installation a number of issues were identified with report integration as well as analysis. These issues required the installation of a new version of the database schema, with additional fixes supplied in the form of SQL scripts, as well as installation of new versions of the goAML client.

Of concern to both AUSTRAC and FINTRAC was that no documentation was provided or used to guide the installation. This led to a number of missteps and configuration errors which took significant time to resolve.

³ <http://goaml.unodc.org/goaml/en/keyfeatures.html>

AUSTRAC and FINTRAC are concerned by the current ad-hoc installation procedure. There is a clear need for detailed step-by-step installation procedures with all configuration values (e.g. SQL Server Scheduled Job names) specified, or clearly identified in the case of site-specific values.

5.2. Client

Installation of the client was, in comparison to the server installation, a relatively straight-forward process, with the application being supplied via a point-and-click installer. Client installation is typically done from a network share; however the installer technology used by goAML currently requires the network path to be hard-coded in the installer. AUSTRAC was provided an updated installer package to suit its network environment. Incremental client updates are supplied in the form of zip packages which are unpacked into the network setup directory. When a user launches the goAML application, it checks for and installs any updates it finds in the network setup directory from which it was initially installed. This update process worked seamlessly.

5.3. Configuration of lookup tables

Each installation of goAML will require configuration of lookup tables which define key types of information. Types are defined as “key-value” pairs where the keys are either alphanumeric or numeric values. Examples of these lookup tables are:

1. Identification types:
 - A = Driver’s Licence
 - B = National Identity Card
 - C = Passport

2. Transaction modes:
 - A = In-branch
 - B = ATM
 - C = Electronic

Configuration of these lookup tables is via the standard data grid entry component in the goAML client. The version of goAML used in this evaluation came with the majority of lookup tables preconfigured.

6. Documentation

AUSTRAC and FINTRAC were provided with the following system documentation:

- goAML Solution Requirements 20080623
- goAML Entity Relationship Diagram (ERD)

In addition, the following documentation was obtained from the goAML website:

- goAML XML Schema for CTRs and STRs v2.4.2
- goAML XML Schema for CTRs and STRs v2.4.2 Description
- goAML User Guide

Overall the level of system documentation provided was regarded as unsatisfactory.

There is a clear need for improved documentation on the installation procedures, system architecture and system requirements so that FIUs can effectively assess the personnel, infrastructure and security requirements of the system.

7. Quality Assurance

During the evaluation a significant number of minor and major errors were experienced with the goAML client application and to a lesser degree with the processing of the report data by the backend database processes. These errors were reported back to the UNODC. The majority of the serious issues – those which affected installation, processing of reports and the accurate analysis thereof - were fixed very quickly (usually within 24 hours) by the UNODC development team. However the number of issues found during and after the main evaluation period, particularly in the client, would suggest that more testing of the system needs to be performed before AUSTRAC and FINTRAC would consider it stable enough for large scale, widespread deployment.

8. Partner Agency Support

goAML does not currently explicitly cater for use by partner agencies. Although there are no technological barriers to providing external access to goAML via solutions such as Citrix, there is no system or data model in place to manage that use. All users created in goAML exist in the one realm and the only way to manage and monitor their use is at the username or IP address level.

In order to support use by partner agencies goAML will need to implement additional data structures and management interfaces.⁴

9. Support

For any FIU adopting goAML, but particularly for those with limited IT resources, UNODC will require at times local and remote access to the database and infrastructure in order to provide support and deploy fixes and updates. Each FIU will have to assess their capabilities, requirements and policies - particularly with regards to IT security - to determine how best to fit this support model into their environment.

10. Performance

10.1. Server

Although rigorous performance testing was not conducted during this evaluation, the time needed for report integration on the evaluation hardware suggests that performance improvements would be needed for FIUs receiving large volumes of reports (greater than 5000 reports per day). As an indication, in the AUSTRAC environment (see Appendix A), goAML loaded, validated and processed 1000 CTR reports each containing 1 transaction in approximately 4.5 hours (~220 transactions/hour).

As UNODC has stated that the SQL Server integration services are planned to be rewritten using standard Windows Services, the performance problem may be able to be addressed during that redevelopment. Nevertheless performance is currently considered an issue given the level of hardware on which the evaluation was run. For FIUs with existing very large report collections, i.e. numbering in the millions, the time needed for the data migration process may pose a significant barrier to adoption.

⁴ Although not evaluated by AUSTRAC and FINTRAC, UNODC has commented that goAML supports integration of Active Directory for organisation, user and access management. This would also facilitate Single Sign-On (SSO).

10.2. Client

No significant performance issues were experienced with the goAML client application.

11. Internationalization and Localization

All goAML software was delivered and tested with an English interface. Although the ability to create and load alternative “Cultures” was demonstrated, no complete localization of the goAML client was seen or evaluated.

12. Test Data

Test data was generated using FINTRAC’s data generator (datagen), which generates random data using a number of lookup tables for names, addresses, states, countries, currencies, industries, occupations and institutions. The program is only able to generate data for each XML node/leaf independently so that it was not possible to automatically generate scenarios where, for example, the exact same person details were used in multiple transactions.

To complement the generated test data, a separate, hand-written scenario was created for use during the training phase at AUSTRAC. This provided a verifiable test-case for transaction and visual analysis. The creation of this hand-written test case led to the discovery of a number of issues in both the client and server.

Of benefit to further goAML evaluation would be the creation of a set of test cases which would quickly allow verification that the system was operating correctly. These test cases along with test documentation would then form part of the user-acceptance testing for the product.

13. Feature Evaluation

13.1. Data Collection

13.1.1. Report Types

The version of goAML’s XML schema at the time of the evaluation (version 2.4.2) supports the collection of reports on cash/currency, domestic and cross-border wire transfers, property transactions (collectively referred to as CTRs) and Suspect Transaction Reports (STR). In the current schema, STRs are essentially CTRs with the addition of the following fields: Person who reported the STR, that person’s address, the reason for the STR (“grounds for suspicion”) and a description of any action taken.

Although there is limited support for cross-border movements (by adding “immigration movements” to a person’s details) there is no explicit Cross Border Report (CBR). Given the increasing focus on monitoring of cross-border cash/BNI movements, this is regarded as a significant weakness.

The schema has been developed to cater for the reporting requirements of the two main countries, Nigeria and Namibia, where goAML has been deployed. It remains to be seen whether it will be able to support the reporting requirements of other jurisdictions without significant modifications, additions or enhancements. Any such changes may in turn require significant changes to the underlying database structures. This should not be seen as a criticism of the schema, as constructing a data model and report schema to support the legislation and reporting requirements of a single jurisdiction, let alone multiple jurisdictions, is a considerable undertaking. There is no doubt the

schema will continue to evolve as goAML is adopted by more FIUs. The challenge for the UNODC will be in managing the development process to support the different requirements.

Of benefit to the FIU community would be a project which would assist in the development of tools and guidelines for mapping existing country-specific reports to goAML data collection standards (XML schema). Of particular interest would be documentation on the mapping of International Funds Transfers based on SWIFT MT103 messages.

13.1.2. Data Collection Model

goAML has been developed to support a strict data collection model which places the responsibility of ensuring data quality on the reporting institutions. The view taken by the UNODC is that it should not be the responsibility of the FIU to deal with reporting institutions' data quality issues. If a reporting institution does not meet the specified data quality standards it becomes a compliance issue and is to be dealt with via the regulatory and legal frameworks in place in that jurisdiction.

This approach may work to some degree for FIUs which collect CTRs and STRs from institutions reporting over-the-counter transactions and domestic electronic funds transfers, as it is expected that those institutions have conducted customer due diligence and therefore have accurate name, address, date of birth and other identifying information, and are able to report full details of the transaction and the involved parties consistently and precisely with each report. However the problem remains when different reporting institutions submit reports on entities and those entities' details may have small variations.

Where the goAML approach will face considerable difficulties is in the reporting of international funds transfers, which are known to have frequent and significant data quality issues. In addition, forms of identification, such as dates of birth, are never transmitted with international funds transfers. Although reporting institutions can augment the report with information from their own databases, in the case of incoming international funds transfers they will not have access to the full details of the originating party. This will limit the ability of the system to match transaction entities with those already present in the database.

These data quality issues were addressed extensively in discussions during the evaluation and as a result further requirements for goAML on entity resolution have been identified.

13.1.3. Data Collection Methods

Reporting entities can submit reports by logging in to the secure goAML website and uploading report files which conform to the XML schema. If an uploaded report is found to be invalid the report is rejected and return to the reporting entity.

Report files may also be uploaded by FIU staff using the goAML client, so that reports could be delivered to the FIU on electronic media for internal upload.

There is also the capability for reporting entities to manually create a CTR or STR using a web form, however at the time of the evaluation this feature was not available and could not be tested.

In addition, an FIU user can use the goAML client to manually enter STRs, though not CTRs or other report types. The goAML client does not provide a single form-like interface, rather the user enters the components of the transaction and related entity details via disparate dialog boxes and the standard goAML datagrid control.

goAML is heavily focussed on fully electronic reporting and there was limited functionality in the version evaluated to support the manual entry of different report types via familiar form-like interfaces.

13.2. Data Clean Up

Although goAML is configurable as to the set of criteria it uses to match entities when reports are processed by the system, the quality of that matching will greatly depend on the quality of the source data. As noted above, goAML aims to achieve better matching by requiring very good data quality from the reporting institutions.

goAML does not currently support comprehensive automatic or user-driven entity resolution, i.e. the consolidation of multiple entities into one entity for the purpose of further analysis/searching. For example, given variations in spelling of names for the same person, goAML will create new entities for each of the variations, as the default configuration of goAML performs exact matches for natural persons on name and date of birth. UNODC has stated that work on implementing Soundex and fuzzy logic-based matching is being done, however those features were not available in the version of the system that was evaluated. goAML will need significant enhancements to perform and manage effective entity resolution.

As a result of the evaluation, an ability to treat a group of entities as one entity (within AUSTRAC this is referred to as “Assumed Identical Groups” for names and addresses) was identified as a requirement. Currently this feature is being called “Virtual Objects”. Users will be able to construct their own groupings, as well as hierarchies of groupings, of entities and share them with other users.

As part of any entity resolution enhancement, analysts will need to be able to see the underlying matching criteria and have the ability to un-match if they believe the matched entities to be distinct.

13.3. Ad-hoc Queries and Matching

Existing functionality to perform searching of persons, accounts, IDs, addresses as well as full text searches was considered good. The QuickFinder tool was considered particularly useful, as it provided very rapid lookup of persons of interest, and quick access to contextual information for the results.

However the goAML client does not currently allow for searching of transactions. AUSTRAC analysts remarked that sometimes they begin their analysis process by looking at transactions, i.e. they don’t know what entities/ids/accounts they are interested in until they look at the details of transactions of interest. They wished to be able to do searches across transactions as it may be at the transaction level that they detect interesting behaviour without knowing anything about the involved parties. They would then do searches on information they extracted from the transaction details. It would therefore be useful to have a transaction search function with parameters such as reporting entity, branch, transaction reference number, transaction amount, transaction type and date range with the availability of set functions (union, difference, intersection) to create new lists of transactions on which to base further analysis.

With regards to entity resolution, the planned “Virtual Objects” feature will provide analysts one method of grouping “assumed identical” entities together to facilitate further analysis.

13.4. *Statistical Reports on Reports Received and Processed*

The goAML client provides a number of predefined compliance reports for overall report submission statistics from reporting institutions, missing submissions (institutions that have not reported in the given date interval) and missing single-side submissions (institutions that have not reported their side of a transaction reported by another institution). These reports can be further refined by specify individual reporting institutions, date ranges, report types and the status of the submitted reports (e.g. submitted, validated, loaded, processed). Results are displayed using the standard datagrid, so that users can perform further analysis using the datagrid features (sorts, groupings, filters), as well as being able to use the full range of charting and export functions.

13.5. *Structured Analysis (Strategic and Tactical)*

The availability of dynamic filtering, pivot tables, grouping and charting within one integrated environment is seen as one of the great strengths of the goAML package. The datagrid component, common across many of goAML's modules, is very powerful and is highly configurable by the user. It allows the user to filter, sort and group on any combinations of fields. The context-aware right-click menus help streamline the analysis process. For example, when right-clicking on a column which contains a name, the menu shows options available for natural persons, such as Person Details and Person Transactions.

Analysts have the ability to save and load workspace layouts, as well as run multiple instances of the client, so that they can quickly configure and load an environment to suit their current tasks.

goAML provides a "Watch List" feature, which is actually more of a configurable and saveable grouping of parameters for Account, Person and Entity searches. A better name for the feature would perhaps be "Search Groups" or "Search Lists", as Watch List implies an ongoing monitoring function. Users can add accounts/persons/entities to their Watch Lists and then choose to use those entries as parameters for further operations under the Analysis menu, such as Person Transactions. Users can also share these lists with other users, facilitating analysis across teams.

13.6. *Profiling*

Not available in tested version/not evaluated.

13.7. *Rule Based Analysis*

Not available in tested version/not evaluated.

13.8. *Workflow System*

The workflow management system, a key component of the Intelligence File Management System, is easy to use and customise to each FIU's requirements. It allows the user to see the full history of a case as well as track time spent at each step. Again, the compelling nature of this feature is that is an integrated component of the system.

The ability to perform statistical workflow analysis was not available in the evaluated version.

13.9. *Task Assignment and Tracking*

The goAML client contains a "Workflow Assignments" popup window located at the bottom of the goAML client which shows all assignments currently allocated to that user. This allows the user to

quickly see what tasks they have to perform, with due dates, commentary and extra messages from the person from whom that task was received.

In addition, users can create their own ad-hoc tasks/to-do lists via a calendar popup window. The integration of all these components within the goAML client will allow users to make more efficient use of their time as they will not have to swap between multiple applications to manage their daily workflow.

13.10. Document Management (with full text search)

The case management component provides an interface for the attachment of documents either directly via file upload, or via scanning devices. The file upload capability was tested by attaching Microsoft Word documents and this worked well. Text within the attached document was indexed immediately and a search for that text produced the expected results. The goAML User Guide however does not specify what other types of documents are currently supported.

A two step process is required when attaching documents, such as Excel spreadsheets or Word documents, which are generated from data within goAML. The generated document must first be saved to disk and then imported into the document management system. This lack of integration may result in documents not being properly attached to cases and/or in data being left outside of the goAML system. This is another future enhancement opportunity.

13.11. Intelligence File Management System

This feature, currently called “Case Management” in the goAML client, is compact and easy to use. It allows analysts to quickly collect all related information into a single intelligence file which can then be managed using preconfigured workflows. It also allows ad-hoc creation of cases not necessarily linked to underlying reports. Using predefined Microsoft Word templates, users can quickly generate intelligence reports, containing all the details of the intelligence file, such as persons of interest, accounts and transaction information, ready for dissemination.

13.12. Integration and/or Data Acquisition from Other Sources

The online acquisition of data was not evaluated, as the goAML evaluation environment did not have access to either the Internet (due to security restrictions) or to external data sources capable of providing data in goAML-supported formats.

The paper-based requisition of information from external sources is easily generated using customisable Microsoft Word templates.

13.13. Charting and Diagramming

The diagramming and charting components allow rapid, “one-click” transitions from the underlying data view to visual representation without time-consuming manual user processes required when exporting data for use with external tools.

The charting tool is highly configurable and provides a simple interface to produce a wide variety of charts such as bar, area, line, pie, point and radar.

The integration of the diagramming component alone will save analysts considerable time by eliminating the requirement to design and export data for use with external toolsets. The compatibility with i2 Analyst Notebook allows the easy exchange of generated documents. The

charting tool uses the i2 Analyst Notebook icons which are familiar to the FIU and Intelligence communities and thus will not require users to become acquainted with a different representation.

A number of enhancements were identified for the diagramming tool, such as the ability to customise/enhance the information on the entity connectors on the diagrams. Currently, connector labels only display the total amount of the transactions between the entities. The ability to display the specific transactions, report types, number of reports and amounts of the individual transactions is required in order to make effective use of this component.

Another desired feature is the ability to go from a diagram view (where for example a relationship was discovered by using "Get Sub Levels") back to a transaction view detailing the transactions that linked the parties. Ideally there should be a seamless transition between the graphical and grid representations of the data.

13.14. Intelligence Report Writer

The intelligence report write allows for the easy generation of customisable intelligence reports via user-defined templates. Similar to mail-merge, the templates define bookmarks which are then populated from case data when the report is generated. The quick and standardised creation of reports will result in considerable time-savings.

Appendix A AUSTRAC Infrastructure

The AUSTRAC server environment was a simplified version of the recommended UNODC goAML Solution Architecture (see Appendix C), with the Web Application and Web Database servers combined, no firewalls, DMZs or external access from or to the Internet. This configuration was deemed to have no significant impact on the evaluation of goAML.

Specifications of the servers and clients, which closely matched recommended configurations, were as follows:

Database Server

Model: HP DL360 G5 (model: 457922-371)
CPU: 2 x Quad Core Xeon X5450 (3GHz)
Memory: 16GB PC2-5300 (8 x 2GB)
Storage: 6 x 146GB SAS 10K HDD (RAID 5, 20GB Boot Partition, 663GB Data Partition)
OS: Windows Server 2003 R2 Enterprise with SP2 x64
Server App: SQL 2005 Standard x64 (with SP2 and Cumulative Patch 8)

Web Application Server

Model: HP DL360 G5 (model: 457922-371)
CPU: 2 x Quad Core Xeon X5450 (3GHz)
Memory: 8GB PC2-5300 (8 x 1GB)
Storage: 4 x 146GB SAS 10K HDD (RAID 5, 20GB Boot Partition, 390GB Data Partition)
OS: Windows Server 2003 R2 Enterprise with SP2 x32
Server App: SQL 2005 Standard x32 (with SP2 and Cumulative Patch 8)

Clients

Model: Hewlett-Packard dc7800 Small Form Factor (SFF)
CPU: 1 x Core 2 Duo E6550 (2.33GHz)
Memory: 3GB PC2-5300 (3 x 1GB)
Storage: 1 x 80GB
OS: Windows XP SP2 + Hotfixes

Appendix B FINTRAC Infrastructure

The FINTRAC server environment was a simplified version of the recommended UNODC goAML Solution Architecture (see Appendix C), with the Web Application and Web Database servers combined, no firewalls, DMZs or external access from or to the Internet. This configuration was deemed to have no significant impact on the evaluation of goAML.

Specifications of the servers and clients, which closely matched recommended configurations, were as follows:

Database Server

Model: HP Proliant
CPU: 2 x Intel Dual Core Xeon @ 3.0GHz
Memory: 16GB
Storage: 2 x 146GB SAS 10K HDD
OS: Windows Server 2003 R2 Enterprise with SP2 x64
Server App: SQL 2005 Enterprise x64 (with SP2 and latest patches)

VMware ESX Server (hosts Web Server and Client VMs)

Model: HP Proliant
CPU: 2 x Intel Dual Core Xeon @ 3.0GHz
Storage: Fibre storage array

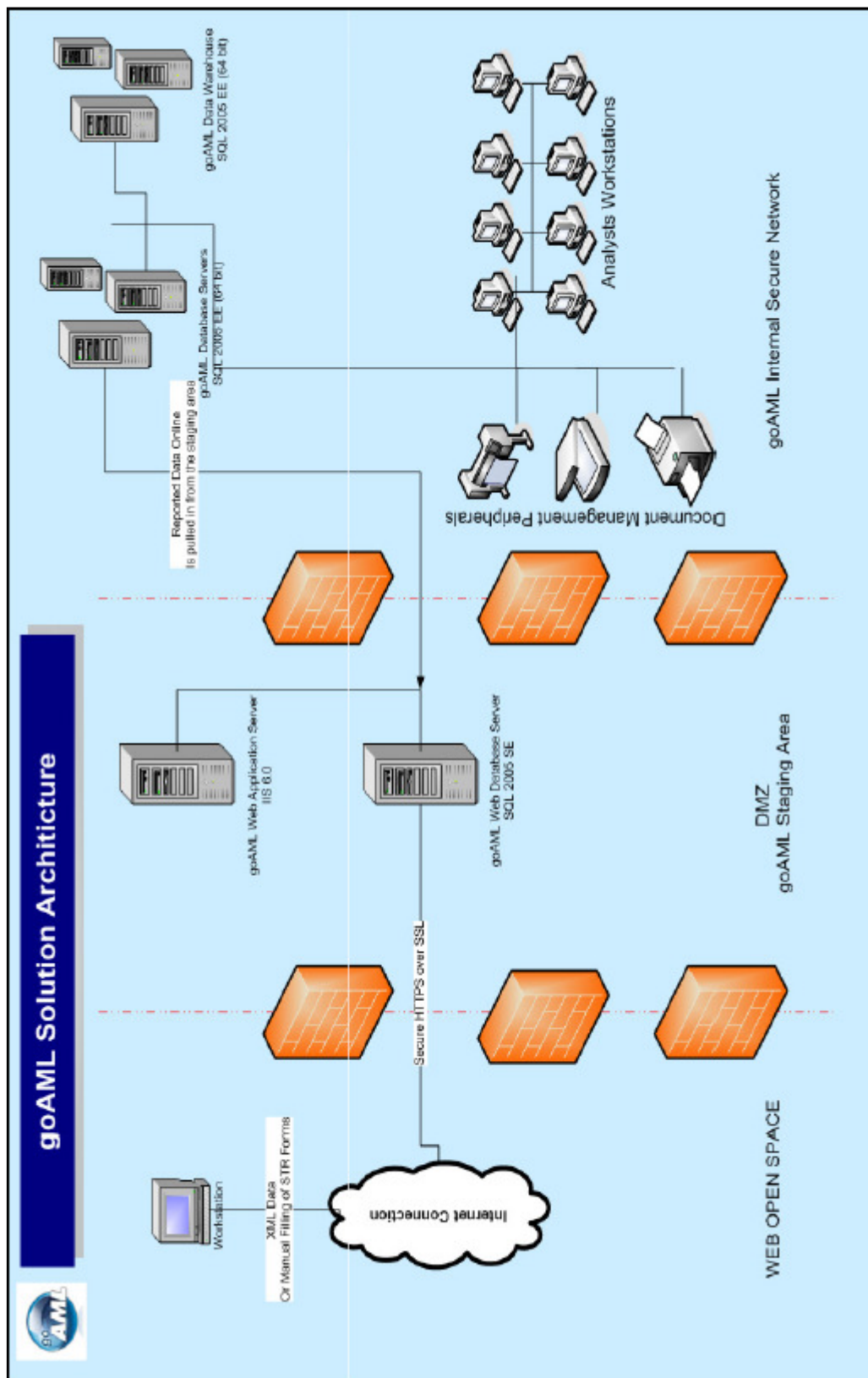
Web Application Server

Model: VMware Virtual Machine
CPU (allocated): 1 x 3.0GHz Intel
Memory (allocated): 8GB
Storage (allocated): 100GB
OS: Windows Server 2003 R2 Enterprise with SP2 x32
Server App: SQL 2005 Standard x32 (with SP2 and latest patches)

Clients

Model: VMware Virtual Machine
CPU (allocated): 1 x 3.0GHz Intel
Memory (allocated): 4GB
Storage (allocated): 100GB
OS: Windows XP SP3 with hotfixes

Appendix C goAML Solution Architecture⁵



⁵ As supplied by UNODC

ANNEX TO REPORT: UNODC Response

15 October 2008



This document has been prepared by UNODC subsequent to the evaluation of goAML by AUSTRAC and FINTRAC. It contains comment on specific issues raised in the report and provides information on enhancements made to goAML as a result of issues raised in the report. It also provides information about aspects of goAML not available to AUSTRAC and FINTRAC for testing at the time of the evaluation.

The comments and views expressed in this annex are entirely those of UNODC.

1. Report Loading Capacity

The loading capacity of goAML is largely dependent on the hardware configuration utilized. The data loading test was carried out on a single server and the results are a reasonable reflection of goAML's loading capacity when configured that way. The addition of further servers to the operating environment will increase data loading capacity exponentially.

See footnote one on page 3 of the evaluation report.

2. Reporting methods

The goAML web application was not available for this test. It is now developed and available for deployment. goAML provides a wide range of reporting options, other than pure electronic reporting, to reporting entities. Data entry screens are an integral component of the web application. Reports can be filled in manually and submitted online. Any reporting institution of any type with internet access can access the portal and report in this way. Reports can also be submitted on paper and manually input by the FIU. At the moment this can only be done with Suspicious Transaction Reports but UNODC is currently developing further reports for CTR and BCR entry. These will be available within days.

3. Data Migration

Migrating data from an existing system to goAML will, in many cases, be challenging. This is an issue that is not confined to goAML. Migration of data from one system to another in any circumstances has its challenges. If any FIU's current IT system is obsolete or in need of upgrading the FIU will face data migration issues irrespective of what new IT solution they choose.

UNODC has considerable experience of data migration projects.

The goAML proposal documentation makes it clear that data migration does not form part of the basic installation process and must be approached as a separate project, usually run in parallel to the installation process. Individual proposals to FIUs considering goAML explain, in detail, the implications of data migration. UNODC will provide, at cost, technical assistance and training of local IT personnel involved in any data migration project. Examples of UNODC's experience in this field are two data migration projects conducted in parallel to the installation of the National Drug Control System (NDS) in Australia and Germany. In the case of Australia 150 million transactions were migrated from an existing system to NDS and in the case of Germany 500 million. Both of these projects were completed in reasonable time and to the satisfaction of the agencies concerned.

See footnote 2 on page 3 of the evaluation report.

4. The goAML Support Model

Where local IT capacity and expertise is sufficient to maintain goAML with guidance from UNODC access to the system by UNODC for maintenance and upgrade purposes is not an issue.

Any IT system requires maintenance, and where local IT capacity is not sufficient access to any system has to be provided to someone to perform various maintenance tasks and deal with performance issues.

If the FIU is hosted in another agency, for example a Central Bank, Ministry of Finance or Law Enforcement Agency, and that agency provides IT support to the FIU, UNODC will train the IT personnel and work with them on site or remotely to maintain goAML. Where no such capacity exists and the FIU wishes UNODC to provide direct support a strict confidentiality agreement will be entered into between the FIU and UNODC.

UNODC has wide experience of dealing with client systems that contain sensitive and confidential data and a breach of security has never occurred.

System maintenance is a "core" activity of UNODC's Information technology Service. ITS is currently maintaining a host of different systems in numerous countries in all regions of the world.

5. Data Quality

Data quality is not an issue unique to goAML. The performance of any analytical system is dependent on the quality of data input to it. Like most IT systems goAML is not dependent on perfect data for it to perform its analytical functions. However poor quality data will have a direct effect on the quality of the intelligence product produced by any system and goAML is no exception. Poor quality data will render some of the more sophisticated analytical functions of goAML of little use to the user and have a direct effect on the performance of the FIU in general.

In this context what is perceived as “poor” quality data? UNODC considers that, in the case of identity details of persons for example, data containing less than the first name, last name, date of birth or a unique identity number is “poor” quality data. Data containing those elements could be considered adequate but, obviously, more data such as address, telephone number, account number etc. will add significantly to the data quality and therefore to the intelligence product produced by goAML or any other analytical system.

However, UNODC is well aware that data quality issues exist and have, since the evaluation by AUSTRAC and FINTRAC, developed features in goAML to cope with situations where information is incomplete, potentially inaccurate and falls short of the XML schema requirements.

This has, at this stage, been implemented in two ways. The creation of a “virtual objects” functionality allowing the creation of entries in the database that reflect possible or suspected associations of persons, entities or transactions (clusters) which are identified in all lookup screens and data grids and will be incorporated into the charting tool. The second is the provision to analysts of a functionality to allow manual updating of data if the analysts is satisfied that further data obtained sufficiently establishes a relationship or connection between persons, entities or transactions. Any changes made in this way are fully documented and tracked by the system.

UNODC is firmly of the opinion that the continual raising of data quality standards should be the objective of all FIUs. UNODC therefore encourages potential users of goAML to raise data quality standards, where there is such a need, with a view to enhancing the performance of goAML and the user FIU’s ability to fulfil its mandate.

6. Documentation

User manuals and other user documentation is being continually updated and upgraded. This documentation will ultimately be translated into multiple languages.

With regard to documentation specific to the installation process, it is not envisaged that there will be any third party involvement in the initial installation of goAML. The installation documentation developed is for UNODC use only. goAML is not a “plug and play” solution and, like any installation of a large software solution, it requires significant technical knowledge of the system itself to install and configure the various components. For the time being at least that knowledge and expertise only exists in UNODC.

7. Quality Assurance

Like documentation quality assurance is an ongoing process. UNODC ITS has a dedicated quality assurance section independent of the External Systems Unit, the development and support unit for goAML. That unit is continuously testing goAML.

In the case of three current deployments of goAML and the installation and testing in AUSTRAC and FINTRAC all identified problems have been rectified quickly and thoroughly.

Any new IT solution will have bugs. Given the size and complexity of goAML, UNODC considers that the problems experienced thus far have been relatively minor and have been rectified speedily. UNODC will continue to work with its quality assurance team and users of goAML to ensure the product continually matures and improves over time.

8. Partner Agency Support

goAML provides for access by partner agencies. It can be configured to support technologies such as Active Directory where users can be created and configured in different realms corresponding to their access privileges and security equivalents.

Existing technology such as Citrix, supported by RSA security, allows applications such as goAML to be accessed over public internet links in a secure, encrypted fashion. An example of this approach is UNODC's own system which provides access, through its "Remote Office" application, to all staff irrespective of where they are provided that they have access to the internet. Access to the full range of UNODC administration, management and IT systems is provided in this way.

See also footnote 4 on page 7 of the evaluation report.

9. Test Data

One of the factors that has inhibited development of some components of goAML has been UNODC's inability to obtain real data, even in a sanitised format. This is particularly so in the case of the rules engine and profiling tool. The sanitised test data supplied by AUSTRAC in the course of this evaluation has already proved valuable in further enhancing some components of goAML, particularly the charting tool. UNODC would welcome the cooperation of other FIUs in this area and would be prepared to work in partnership with the ITWG or any member FIU that would be willing to help by sharing sanitised data and their experience.

10. Report Types

Subsequent to the FINTRAC, AUSTRAC evaluation UNODC is developing a screen for manual input of CBR data by the FIU and a web based form for input by Customs or Immigration authorities or whoever else collects and inputs this type of data. If a future need for fully electronic input of this type of data is identified this will also be developed.

UNODC ITS has significant experience of developing and deploying global systems in disparate locations, cultures, languages and agencies. For example, in the case of NDS, we are managing 60 different sets of customised reporting plug-ins.

The primary data collection medium for goAML is an XML schema which is customised to individual user requirements at installation. A database of all schemas is kept by UNODC, and modifications and updates are done in consultation with UNODC. Likewise all non XML based reporting options are configured to local requirements at the time of installation and copies of the local forms are also held by UNODC.

This process will, however, require careful management as the number and diversity of users of goAML increases. It is not just a question of the diversity of legislation and reporting requirements but also of language, enforcement culture etc. UNODC is fortunate to have technical people who are proficient in all the principal languages of potential users of goAML.

There will be many different schemas developed for and configured to the requirements of different users. These are designed and implemented as "plug ins" and do not require changes to the underlying database structures.

11. Data Collection Model

Enhancements to deal with issues raised in the report have already been implemented. See section 5, Data Quality.

12. Data Collection Methods

The method of manually entering data is straight forward and although not strictly form like is easy and quick once the user becomes familiar with it. Separate entry screens for persons, entities and accounts present an uncluttered view and the single line entry for transactions that links all other details together, provides the ability to enter multiple transactions in a tabular format. The entry of the transaction details creates a hyperlink to all other details associated with the transaction(s).

13. Ad-hoc Queries and Matching

There is a wide variety of search options available to analysts using goAML. In fact all parameters, with the exception of the transaction number, are available to search.

If a need for a search function on transaction number only is broadly requested by users it will be implemented.

14. Charting and Diagramming

The ability to switch between the diagram view and the transaction grid view is provided by two tabs in the bottom left of the screen. The grid view shows all transactions that are represented in the diagram view and this grid builds with each expansion of the diagram.

Recommendations

All recommendations in the report are noted and those that have not already been implemented will be.

UNODC is particularly encouraged by the paragraph on page 10 of the report that suggests the FIU community would benefit from a project to assist in developing tools and guidelines for mapping existing country specific reports to goAML data collection standards. UNODC would support such an initiative and participate to the fullest extent possible.

We also note with approval recommendation 1 in the Executive Summary and will establish such a working group which will eventually be expanded on a regional basis as the goAML user community grows. These groups will be supported by an online forum provided through the goAML website which any FIU, goAML user or not, will be encouraged to contribute to.

Conclusion

UNODC is grateful to the IT Working Group of the Egmont Group for initiating this evaluation and to the management and staff of FINTRAC and AUSTRAC for willingly devoting the considerable time and human resources that they did to this exercise. The goAML development and support team has benefitted considerably from the knowledge and experience of the FINTRAC and AUSTRAC staff assigned to the evaluation and goAML has improved already as a result.

Many emerging FIUs, particularly those in the developing world, and some well established FIUs contending with the complex issue of deciding on IT solutions should also find this report of considerable benefit in the decision making process.

The features of goAML evaluated in this exercise represent a snapshot of goAML at that time. Further development of goAML will be a continuous process for at least the next five years and as the user community grows and its experience of using goAML matures that process will be accelerated and the application enriched as a result.