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THEATER SECURITY COOPERATION MANAGEMENT INFORMATION SYSTEM

2003 COMPUTERWORLD HONORS CASE STUDY

GOVERNMENT & NON-PROFIT ORGANIZATIONS
WORLDWIDE CONSOLIDATION OF INFORMATION ABOUT CURRENT EVENTS IN EUROPE AND AFRICA, GATHERED FROM MULTIPLE SOURCES INCLUDING ALL BRANCHES OF THE MILITARY, SUPPORTS AUTOMATED PRODUCTION OF BRIEFING BOOKS AND SLIDE PRESENTATIONS THAT ASSURE THE COMMANDERS KNOW WHAT THE CURRENT SITUATION IS. **[20034705]**

SUMMARY

A dynamic worldwide tool for planning military activities in Europe and Africa. TEPMIS answers when, where, who, and how resources are allocated. Humanitarian Assistance that the U.S. provides to Africa is a notable example. After September 11th, TEPMIS gave a perspective of what was going on in Europe and Africa.

APPLICATION

The Theater Security Cooperation Management Information System (called TEPMIS, and originally known as the Theater Engagement Planning and Information Systems) was developed to give the commanders of the Headquarters, United States European Command (HQ USEUCOM) a clear picture of how they were planning their various engagement activities in Europe and Africa. The application provides a 5-year goals and objectives perspective of U.S. plans in Europe, Russia and Africa. An example of this would be the humanitarian assistance that the U.S. does in many countries in Africa. For the commanders of HQ USEUCOM to plan the humanitarian assistance activities, they needed a comprehensive database application to identify resources and help set goals. TEPMIS is that application. It is a robust database, which assists HQ USEUCOM to answer the following interrogatives for their activities: when, where, who, for how long, and what resources are required. After September 11th, TEPMIS was used to give the commanders of HQ USEUCOM a perspective of what was happening in Europe and Africa. TEPMIS tracked approximately 1,700 separate activities in fiscal year 2002 and is expected to track more events in the new fiscal year.

TEPMIS runs on the military Secret network. It is a DITSCAP (DoD Information Technology Security Certification and Accreditation Process) accredited application.

TEPMIS is programmed in Microsoft Visual Basic (VB) and Microsoft Internet Information Server (IIS), and is composed of a VB data entry application and an IIS report generator. Data entry is separate from the report generator to give our customers the most robust program available for data entry in a Windows operating environment. The report generator is an Internet application and available to any user worldwide, regardless of operating system. Both applications use COM+ and SQL Server 7 for their obvious functionality and flexibility. TEPMIS is currently on its sixth version release.
Goals: The TEPMIS team has focused on providing as much information as possible about events happening in Europe, Russia and Africa to as wide an audience as possible. To that end, TEPMIS provides an IIS web application that is available to anyone on the Secret network around the world. The TEPMIS application used for data entry focused on providing an easy, responsive user interface that allowed the timely input of data while also maintaining the security of the database. These goals have been met.

BENEFITS

TEPMIS has been extraordinarily beneficial in providing a significant information data resource for commanders of HQ USEUCOM.

Consolidated and Centralized Data: Before TEPMIS, the data that TEPMIS tracks was kept in a variety of paper notes, spreadsheets, word processing documents, and in the minds of those responsible for the data. TEPMIS consolidated this all of this information into a robust database application.

Providing a View of Military Activity for Several Continents: TEPMIS has fundamentally changed how activities within HQ USEUCOM's area of responsibility – Europe, Africa and Russia – are tracked, recorded, and reported on. A consolidated view of theater engagement activities within both continents was not possible without a tremendous amount of work. Now, this information is resident in an interactive database and is available immediately on line to any user of the Secret network.

Improved and Expedited the Flow of Information to the Users: An example of this is depicted by how the Deputy Commander (DCOM) of HQ USEUCOM uses the system. When the DCOM visits a country, a "read-ahead" book is compiled so that the DCOM knows what has been happening in the country, what is currently going on, and what is planned for the near future. This is especially important for the DCOM to have because when meeting with local dignitaries, U.S. policy and activity within the country is usually discussed. The "read-ahead" book used to take a staff of 5 or more over a week period of time to compile the data through e-mails, faxes, phone calls, and personal interviews. Now the "read-ahead" is tracked in TEPMIS and is available 24-hours a day at the push of a button. The report usually takes less than 30 seconds to run.

Pooling Resources to Limit Double Entry: TEPMIS gives users a complete, coherent picture of what is happening in Europe, Africa and Russia. TEPMIS has over 400 data entry users, but also has a component that imports data from other Department of Defense systems. The import process eliminates double entry and facilitates a complete view of various engagement activities. De-mining events, ship port visits, humanitarian assistance, and many other types of events used to exist in separate systems. TEPMIS combines the data into one global view and provides tools for our users to mine the data anywhere in the world through their Internet browser.

Real-Time Reporting: The TEPMIS web site provides reports in real-time of activity from any desktop connected to the secure network that has an Internet browser.

Little or no start up costs: Initial costs related to buying the SQL server and Microsoft Internet Information Server (IIS) were funded by HQ USEUCOM. No other money was required to fund installation of TEPMIS across Europe: TEPMIS was able to piggyback on existing hardware and software at each site. The principle start up cost for each network that updates data into TEPMIS was one or two days of coordination between the TEPMIS team and the network staff to complete the installation. Web access to TEPMIS requires nothing except an Internet browser.

IMPORTANCE

TEPMIS has been an innovator in applying technologies available in the commercial world to applications on the military Secret network. Processing information from so many separate sources, spanning military organizations and physical networks, has lead to TEPMIS applying technology in ways uncommon to the normal military network.

Information technology contributed to TEPMIS' development is several ways. There are few, if any, other applications on the military Secret network that use information technology like TEPMIS does in bringing together sources of data on a Secret network from all across Europe. TEPMIS spans the bounds of separate Local Area Networks (LANs) to provide a robust data entry application. TEPMIS' web application is specifically written so no special installations of software are needed to run it; an Internet browser is all that is required. Significant capabilities resident in the application of TEPMIS include the following:

1. Fusing Military Source Data. TEPMIS uses information technology in order to fuse data from sources that normally do not speak to each other and do not normally share information. The first challenge to TEPMIS' development was how to bring together data from the Army, Air Force, Marines, and Navy. These sources of information exist for the Headquarters

European Command (HQ USEUCOM) all across Europe and in different LANs. TEPMIS needed to bring these sources together and provide a real-time interface in a centralized database. Microsoft Transaction Server (MTS) technology was used to overcome this challenge by allowing the TEPMIS team to program a flexible data application that pools local connections through MTS at each site across Europe and provides a single data link to the SQL Server at HQ USEUCOM in Stuttgart.

2. Data Retrieval. TEPMIS uses information technology to provide users with a standard way to retrieve data. The TEPMIS web application provides snapshot looks at the TEPMIS data for the casual user, providing reports that give views of activity inside Europe, Africa or other regions at the press of a button. TEPMIS also allows detailed data mining through a standardized interface that can retrieve custom reports for our users.

3. Standardization for All Information. Information technology was used in TEPMIS to standardized data. Before TEPMIS, there was little or no standardization to the data being collected. TEPMIS data captured in Excel spreadsheets from one user may have references to the "Ivory Coast," while another user would track the country as "Côte d'Ivoire." TEPMIS standardized country names, dates, and naming conventions through business rules programmed in the consolidated database and the data entry application.

4. Innovative Use of PowerPoint: An example of innovation is TEPMIS' use as a code generator. A request was made to the TEPMIS team to provide a snapshot view of the database and to reproduce this view in a Microsoft PowerPoint Presentation: The need was to create a PowerPoint slide that could disconnect from the Secret network and be inserted into a briefing for the Deputy Commander of HQ USEUCOM. Since TEPMIS is a server application, little or no code exists on the user's desktop. The need to create a PowerPoint slide was worldwide; any user that accessed the TEPMIS web site should be able to dynamically generate this slide. The TEPMIS team used Microsoft Visual Basic Script (VBS) to solve this requirement. The TEPMIS user selects their criteria for the report, and then the TEPMIS web site generates VBS code that builds the PowerPoint presentation on the user's desktop. The TEPMIS web site downloads the VBS file that the user runs on their computer to create a PowerPoint slide. The code automatically generated by the TEPMIS application showing activity in Europe for 30 days can be over 20,000 lines long, and takes about 30 seconds to generate.

5. Innovative Use of SQL Server: TEPMIS has a generic import process that converts data from Microsoft Access, Microsoft Excel, and other sources into Extensible Markup Language (XML) form. Using a generic XML file to import into TEPMIS has opened and consolidated many sources of data into a single source: TEPMIS. Using Microsoft .Net technology, the TEPMIS team generates generic SQL statements from the XML import file to populate the TEPMIS database. The introduction of XML technology has reduced double entry of TEPMIS data and consolidated information from several systems into one.

ORIGINALITY

TEPMIS automates the tracking and planning of U.S. activities in Europe, Russia and Africa. TEPMIS was the first application of its kind to be fully implemented on the Secret network. It links data entry users from all the military branches into one seamless application. For the commanders of HQ USEUCOM, it provides a combined view of all of the various theater engagement and security cooperation activities that the Army, Air Force, Marines and Navy are involved in, highlighted, as follows:

Breaking Ground. TEPMIS has broken the ground of cross-network applications. A user in London will have the same response time as a user in Italy and Germany when connecting to the central database in Stuttgart. Getting all the branches of the military to agree to a common connection philosophy, and then implementing it, has created new areas for new applications.

Simple Beginnings. TEPMIS began as a handful of notes, a Rolodex of phone numbers, and an occasional spreadsheet of data – that is, the old way of doing business in the exchange of critical event data and information. It evolved into a Microsoft SQL Server application with over 400 data entry users, with 1,500 reports being generated a month and data imports from several other military systems.

SUCCESS

TEPMIS is fully operational and is on its 6th version release. The data entry application began with limited use in Stuttgart, Germany, and expanded to five Local Area Networks in Germany, one in London, and two in Italy. TEPMIS Web users span the globe, with users as far away as Hawaii using the report generator.

The initial reaction from the user base was skeptical, but as the system expanded its repertoire of data imports and simplified report generation, more and more users have joined in. TEPMIS' data import has consolidated several systems together so that information from many sources can be compared in one report. The import process means that double entry is eliminated and users can concentrate on data quality instead of quantity.

TEPMIS is gathering a good, reliable set of historical data. Advanced data mining, trend analysis, and expanded imports are all targets that the TEPMIS team is working on at this time in order to geometrically expand the database's capability for the users and for the command.

DIFFICULTY

Applying commercial solutions in a military environment can be very difficult. TEPMIS challenged the military network departments by proposing a Microsoft Transaction Server (MTS) solution coupled with a web application. There were no other MTS based applications on the military Secret network. TEPMIS set the standard for this type of application.

Significant obstacles were placed in the path of the TEPMIS team. Significantly, most of the obstacles were placed because of the lack of experience the network technicians had in supporting applications like TEPMIS. It took intervention from the highest levels of the HQ USEUCOM command to let TEPMIS be prototyped. Once the prototype phase had been completed, and the DITSCAP (DoD Information Technology Security Certification and Accreditation Process) accreditation process began, TEPMIS' main obstacles were overcome.

The DITSCAP process, which eventually certified TEPMIS to run on the Secret network, was a process that cost over $30,000 and required significant production time. The DITSCAP accreditation document alone is over 200 pages long. Basic installation guides and site preparatory white papers are about 100 pages long.

One of the unanticipated challenges TEPMIS encountered was that the application would be used on board naval ships. That ships at sea would use the application was a surprise to the TEPMIS team, given the limited nature of shipboard systems, and that space and resources would be allocated for application. The web application and the MTS solution were checked for performance in poor connection conditions and optimized accordingly.