

## Consequence Management Through an Innovative Use of Collaboration Tools

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### Abstract

*At the end of the twentieth century, the year 2000 (Y2K) date change problem threatened computers and digital systems around the world. Y2K refers to computer and automated control system malfunctions that could have occurred when the year changed from 1999 to 2000. Many computers and automated systems were engineered to handle only two-digit year formats, and would have made mistakes or stopped working when they encountered "00" in the date field. In light of the Y2K situation, the Department of Defense (DOD) was challenged to provide flexible and responsive consequence management capability that would swiftly resolve possible crisis situations. This article focuses on the U.S. Army Research Laboratory's (ARL) participation in the creation of the DOD Y2K Consequence Management (CM) capability. Specifically, ARL incorporated Group Decision Support System (GDSS) tools into the CM process of the Executive Support Center (ESC) of the Office of the Secretary of Defense (OSD).*

### 1. GDSS Collaboration Tool Overview

An essential part of the effectiveness of large corporate organizations depends on the contributions of distributed team members. Collaborative computer support enhances these meetings by allowing team members to work both simultaneously and in parallel. After discussions with top-level management concerning the requirements for DOD Y2K consequence management, a GDSS concept was decided upon as the best method for timely responses. In general, a GDSS is an interactive, computer-based environment that supports distributed and collocated teams in consensus building towards a common goal. While GDSS is a generic name for software collaborative systems, the specific system used in this instance was GroupSystems Online developed by GroupSystems.com (formerly Ventana Corporation).

GroupSystems Online incorporates an implicit organization of activities designed to streamline the meeting process and focus distributed team efforts. Each meeting is considered a "folder" that contains an agenda

area describing the steps necessary to achieve a goal. Most of these steps involve the use of tools for brainstorming, organizing, prioritizing, and document creation. Key to its flexibility is the ability for information to be constructed in one tool and then moved to another tool for additional processing.

GroupSystems Online tools are capable of being distributed on a network of personal computers. When collaborating in a GroupSystems environment, distributed team members are allowed to contribute in parallel and in an anonymous fashion. Contributions are immediately available to the other team members enabling near-immediate reactions. This feature enables a distributed team to effect solutions in a complete and efficient manner. In this application, the capability to submit information anonymously was not used, as attribution to an organization was essential to effective completion of the task.

There are several structures within GroupSystems that need to be described to understand how it was applied to the Y2K Consequence Management (CM) operations. Each meeting within Group Systems is a Folder, and each folder contains an Agenda. The steps within the agenda area represent Activities that the folder owner (or meeting facilitator) deems necessary to the successful completion of the team goal. Each activity is a tool that can be tailored by the facilitator to achieve a desired outcome. In the DOD Y2K efforts, the Categorizer tool was used for brainstorming and organizing information. That information was then moved to Group Outliner, a document preparation tool.

The Categorizer tool allows interactions between meeting participants through a three-tiered data organizational interface. The first tier is called a Category or Bucket. Each category can reflect a different part of a single goal or one of several goals to be considered by the team. The second tier is called an "idea." Ideas contain significant considerations pertinent to attaining the category goal. The last tier is called a Comment and contains the input on an idea. The comments are generally where the text of a discussion or document is contained. The fourth available tier, annotation, was not used.

The Group Systems report writer tool, Group Outliner, offers an excellent interface for the organization and finalization of written works. Ideas, along with associated comments, can be easily transferred from Categorizer to Group Outliner. Each category becomes a report section title and each idea is translated into a subsection title within a report outline. Team comments are accessible through each subsection header and can be manipulated into paragraph-like prose. The outline and comments can then be transformed into a report format usable by a word processor. Another tool, Handouts, was used as a document repository. Group Systems also allows the ability to create a template of a meeting, allowing multiple similar meetings to be generated very quickly.

## 2. The DOD Y2K Consequence Management Decision Support Process

Overall coordination of the DOD Y2K consequence management effort was the responsibility of the Deputy to the Under Secretary of Defense for Policy Support. Several organizational entities were employed as an

the DSA for DOD resources. Coordinated recommendations presented for decision were relayed to the appropriate agency or PSA by the ESC. A four-phase process was used to organize responses (See figure 1).

### 2.1 Conceptual Overview of the Process (figure 1)

In phase I of this process, the ESC receives an event requesting DOD support. A Group Systems folder is created for that event from a template containing three activities. The information identifying who, what, when, where, etc is loaded into the first activity (a Categorizer session) or into the handouts associated with the folder and referenced from within the Categorizer session. Responsibility for action is assigned to JCS for events requiring international action and to DOMS for events solely domestic in nature. Tailoring of the folder was expected and encouraged.

In phase II, the JCS, DOMS, and all of the principle staff agencies (PSAs) (specialists in operations, logistics, finance, law, etc) are invited within the GroupSystems categorizer session to identify what the DOD can do

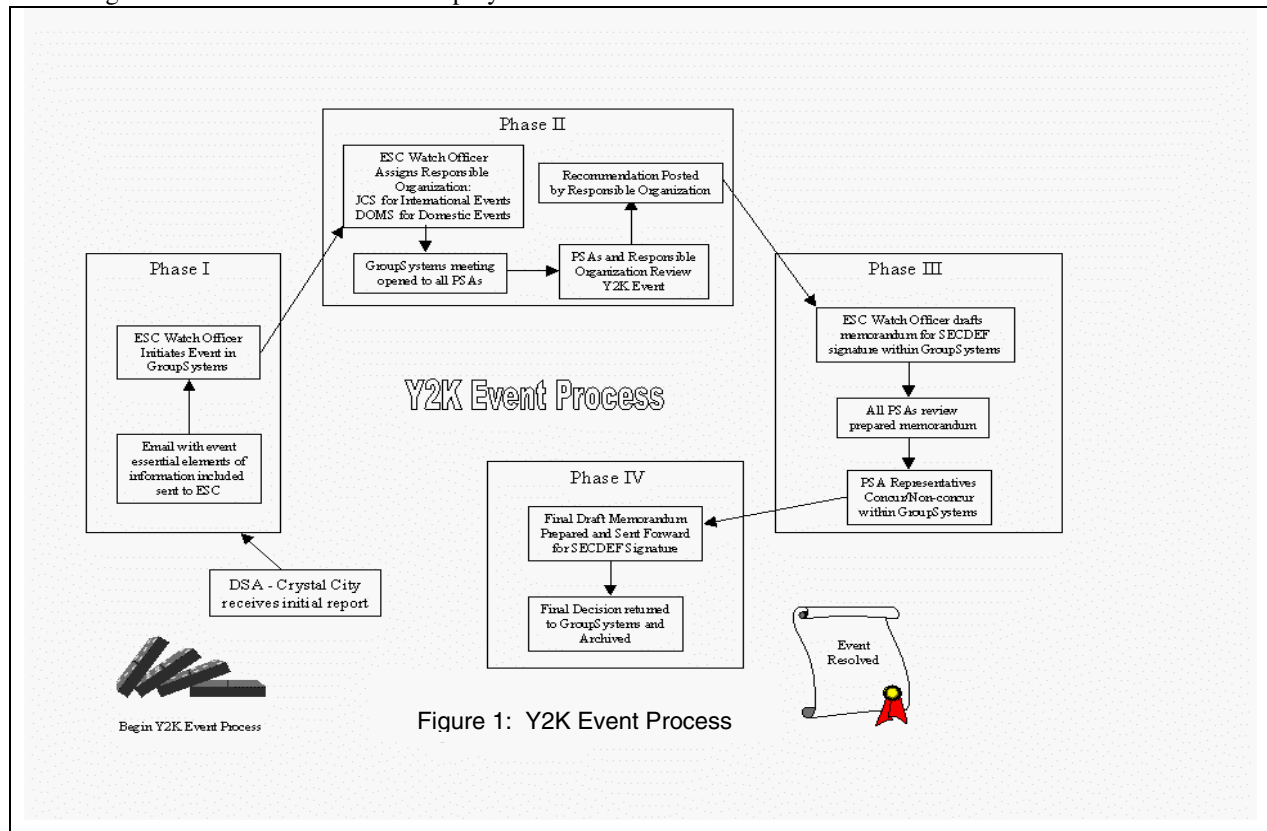


Figure 1: Y2K Event Process

infrastructure including the C3I Y2K Decision Support Activity (DSA), the Office of the Secretary of Defense Executive Support Center (ESC), the office of the Executive Secretary (ExecSec), and several Principle Staff Agencies (PSAs). The Y2K team, in conjunction with the Joint Chiefs of Staff (JCS) and the Director of Military Operations (DOMS), coordinated requests from

(assets available to help) or must not do (by law or treaty, etc) and identify what the DOD should do in a specific case. Also identified here is the effect on military readiness. This last is what made the actions classified. This was the primary phase in which consensus on the required action(s) was identified.

In phase III, the material from phase II was copied into a Group Outliner session so that it could be transformed into a decision document for approval and signature by the Secretary of Defense. When the document was completed, the Group Outliner session was opened for review by the representatives of the PSAs who were required to electronically signify their agreement with the proposed action before the document would be printed out for signature by the Secretary of Defense. The information was copied rather than shifted as shifting would have destroyed the outline already present which carried the required format for the intended document.

In phase IV, the material was prepared as a report, which was then tailored to meet formatting requirements for signature by the Secretary of Defense. The signed document was then both forwarded to the necessary offices for action and scanned back into GroupSystems for inclusion as a handout to provide a complete record of the decision process from start to finish.

For those who are counting, the above description accounted for two of the three activities included in the template. The third activity was another categorizer session, which enabled the ESC watch officers to communicate with one another across shift changes and to cooperatively manage each event until it was complete.

This process was designed to operate in a distributed mode with the interested parties operating in parallel on multiple simultaneous events. Previously, an event would be assigned to a single office that would then coordinate the action and prepare the necessary documents for action. This significant change in process required significant change management. Successful operation of this process required significant prior planning, intensive training, and extra technical support.

### 3. U.S. Army Research Laboratory Participation

ARL's role was to assist the PSAs in developing a coordinated response to a Y2K event and provide a complete record of an action. ARL designed the collaboration environment and provided both training and operational support. ARL representatives became involved in the DOD Y2K consequence management effort in May 1999. The ARL team was formed with a core of three GDSS collaborative software experts and augmented with 10 additional GDSS trained personnel. Over the seven-month period prior to January 1, 2000, the ARL team developed the infrastructure and capabilities to enable rapid response to events via Group Systems Online. The goals of the environment developed over time, but in brief were:

- Monitor/report status/progress of Y2K issues (within DOD and externally);
- Identify potential or actual problems on a timely basis;

- Respond to any problems expeditiously;
- Maintain a consistent flow of fact-based information within the DOD

#### 3.1 Related previous effort

One reason for ARL's involvement was previous work by ARL personnel with the US Army Information Systems Command [1]. The overall goal of this effort was to verify mission essential tasks for the command staff. In this application, ARL personnel ran a wargame within GroupSystems. Each organization was given a computer console and one user id within GroupSystems. The game was divided into four scenarios. Each scenario depicted a stage of a military conflict. Staff personnel on GroupSystems consoles were to input the types of activities they were involved in and who was supporting them. These "scenario tasks" were later matched with the list of stated mission essential tasks to determine tasks that were done that were not accounted for and tasks that may have been thought to be done, but never were [1]. This methodology gave all players immediate analytical feedback concerning their roles and responsibilities during a crises. Senior ARL management aware of this unusual use of collaboration technology recognized a similar possibility for the Y2K Consequence Management – organizations interacting during a crises situation to resolve issues.

#### 3.2 Risks.

From the beginning, ARL and DOD management understood the risks associated with implementing a collaborative approach within the DOD offices. The basic risk was technology rejection by the users. Actions would now be completed in a parallel fashion, rather than in the conventional, safe, normal process of sequential staffing. All parties could now see the action as it progressed. Another risk was that the new technology was supporting time critical events for personnel and property in jeopardy. The effort described earlier was a wargame; this was the real thing. Another risk was that the effort was highly visible to internal and external OSD staff. To mitigate these and other risks, ARL adopted several strategies. First, the adaptation of the process was an ongoing effort and the ESC management was involved at all times. Next, there were many training sessions and exercises. The third mitigation strategy concerned support personnel. Despite the intensive training effort, it was realized early on that under actual operations, some individuals might need a coach to allow them to effectively perform their tasks with the new method. This coach would assist the individual in using the technology, but not advise the individual in the functional area. Therefore, approximately 10 ARL individuals were trained to provide such coaching support not only during

training, but also during operations. This strategy proved crucial to user acceptance as throughout the Y2K event period personnel unfamiliar with the collaborative environment and who did not receive the special training were showing up for duty.

### 3.3 Basic Collaborative Environment

One of the critical tasks in using software such as Group Systems to support an operation is the task of mapping the tools to the existing process of operations. This proved to be difficult for two reasons. First, although the Executive Support Center regularly responds to crisis, the Y2K process added the Decision Support Activity, a front-end data collection and analysis center. Therefore, the “old” process wasn’t exactly the same and

sections describe the method of development, a Y2K event, and the tools used. Since the actual operations were classified, all screen shots used in this paper were from the training materials and did not represent any actual Y2K activity or discussions.

**3.3.1 Designing the Environment.** In the previous existing ESC environment, a Watch Officer received a task, determined a lead agency, and made that agency responsible for task completion. Upon task completion, the action package was routed through various PSAs for concurrence and signatures. This manual process was a time consuming event for the Watch Officer, requiring several days and long hours. The ARL task was to map the existing process (suggesting changes where appropriate) to the collaboration tool. This was

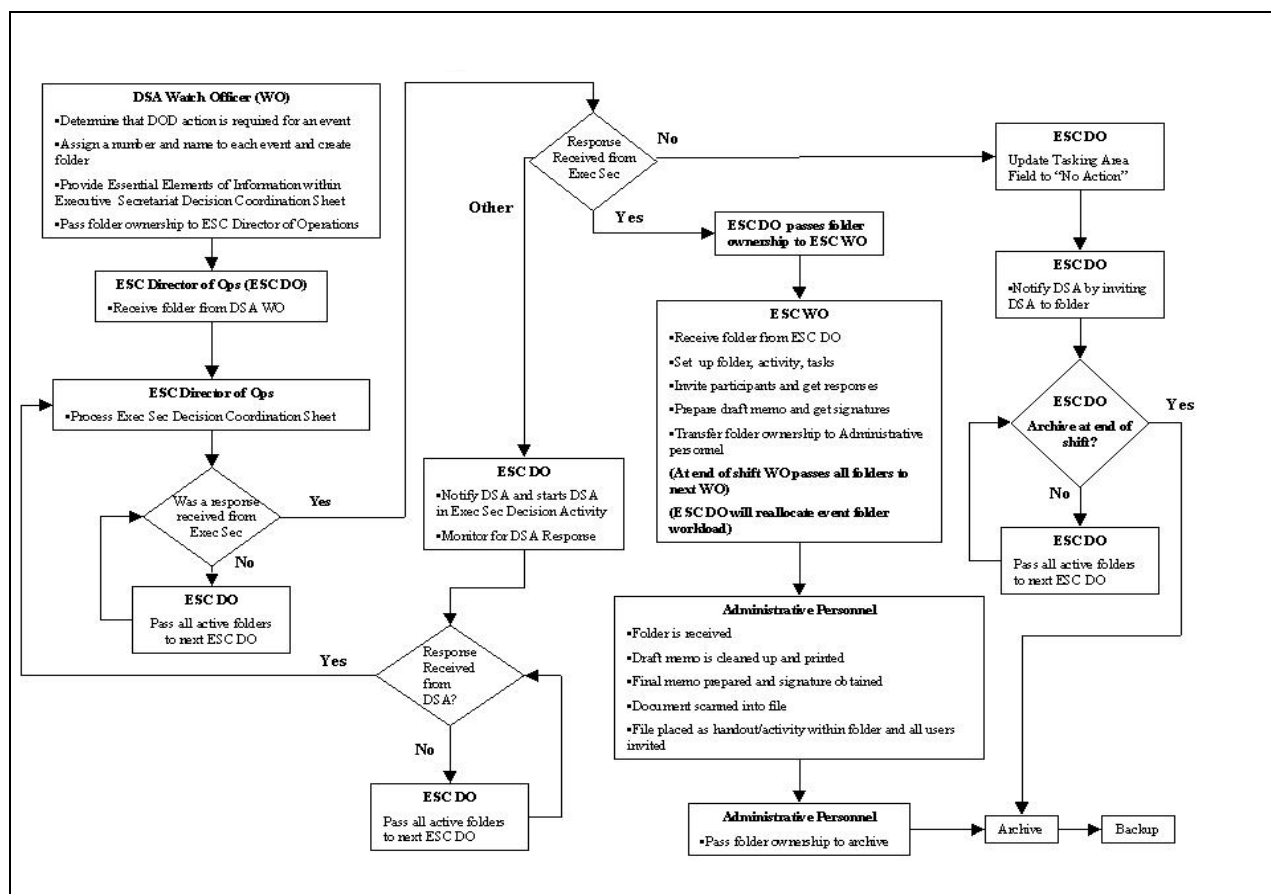


Figure 2. ESC Y2K Consequence Management Collaborative Process

the “new” process had never been done before. Second, the use of the collaborative environment would be changing either of those processes by its very nature of employing parallel staff work. As discussed, Figure 1 provides an overview of the process. However, to actually map the process to GroupSystems required a more detailed view as shown in Figure 2. The following

accomplished by interviewing the ESC Director, the ESC Deputy Director, and numerous reserve officers. Feedback from several Reserve Watch Officer walkthroughs and training sessions was incorporated into the ARL process mapping. Four DSA sponsored Y2K event exercises also employed the ARL collaborative

environment. After each session the process was reviewed and modifications made to the system.

**3.3.2 Y2K Event.** The first critical decision was to identify what was a Y2K event. After several iterations with ESC personnel, it was decided that each major disaster or request for resources would be considered an event. Events were designed as responses to major snowstorms, computer viruses, terrorist activities, and any significant request for support. Since an event would have multiple taskings and requests, and perhaps much support material, an event was designed as one GroupSystems meeting. The system was designed to try to resolve major decisions within a few hours that previously may have taken days. Further, participants were trained to be able work on several of these events concurrently. For example, two of the exercises had over 20 events being worked within the exercise timeframe (8-12 hours).

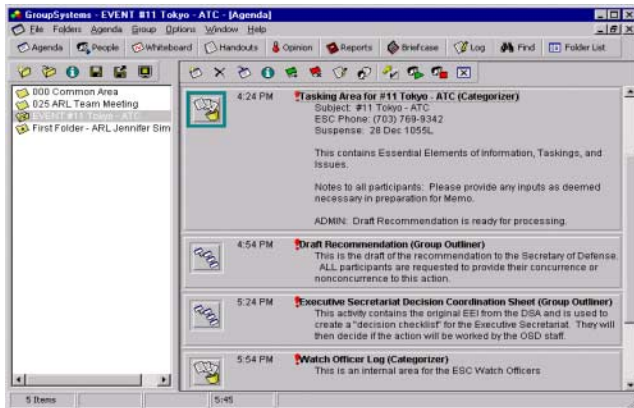


Figure 3. Example Agenda

**3.3.3 Folder List and Additional Meetings.** The folder list proved crucial to the operations as each Y2K event could be found in the folder list. Figure 3 shows only one Y2K event at the time. As exercises progressed, each event would show up in this window. The Common Area was designed to house training manuals, provide communications checks, and enable constant feedback from the users. Another meeting (not shown) housed various classified reports that were not associated with any one Y2K event. Still another meeting was reserved for ARL support team issues and feedback. A large portion of the original material for this paper was actually obtained from the ARL support team meeting.

**3.3.4 Folder Ownership.** In Group Systems each folder/meeting has an owner that has all privileges. They decide which portions of the agenda each person can access. They also decide on what access that individual will have (read-only, modify, etc). In general, folder ownership is very stable. However, in this methodology,

folder ownership was used as a crude form of workflow. Specifically, in the early design of the detailed flow, a request for support was to come into the ESC from the DSA via email. After a couple of exercises, DSA personnel requested that they actually initiate the folder and then pass folder ownership to the Director, ESC (See Figure 2). They in turn would pass folder ownership to Watch Officers. If an ESC Watch Officer was changing shift and the tasks were still in progress, that Officer would transfer ownership to their relief. Eventually, once the action had reached memorandum stage, the folder would be passed to the ESC Administrative personnel for finalization as a memorandum for signature. Once obtained, the memorandum was to be scanned back in the system, placed in handouts, and the folder ownership transferred to an archive account.

**3.3.5 Agenda.** The agenda of each Y2K event was basically the same and was created from a template of a generic Y2K event. Watch officers were trained to take the basic template and customize it for their particular task. Figure 3 is an example of the Agenda for one of the training events used as an illustration in the Watch Officer's Guide. Some activities such as the Tasking Area were open to all users. Some, such as the Watch Officer Log and the Executive Secretariat Sheet were available only to designated subset of users.

**3.3.6 Tasking Area (Categorizer).** The Categorizer tool contained all taskings. One bucket was used for current taskings. Other buckets would have been used for older information. For those reasons, buckets/categories were not normally seen. The tasking and preliminary information were list items (Ideas) within the main bucket as shown in Figure 4. Each tasking had a title (header)

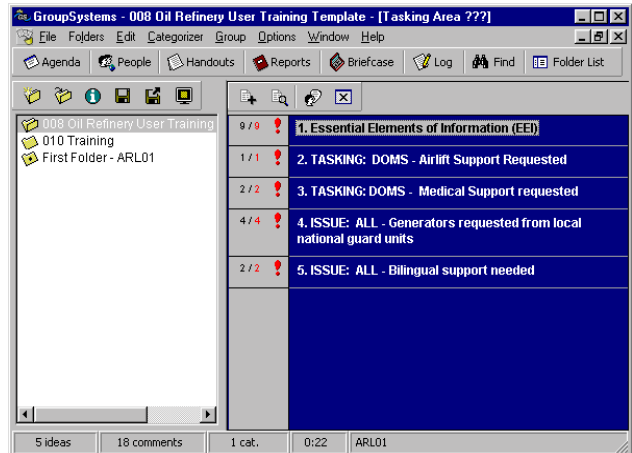


Figure 4. Example of Taskings

and one comment describing what was needed. Figure 5 shows the text (Comments) of the essential elements of information for the training task. Figure 4 also shows



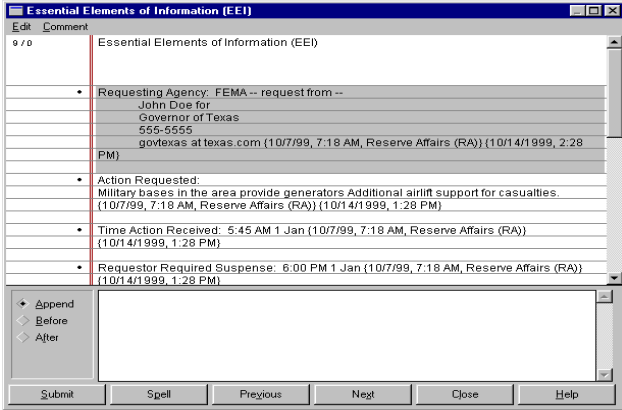


Figure 5. Example of Essential Elements of Information

multiple taskings of an event such as requests for blood supplies, blankets, communication equipment, generators, and so forth.

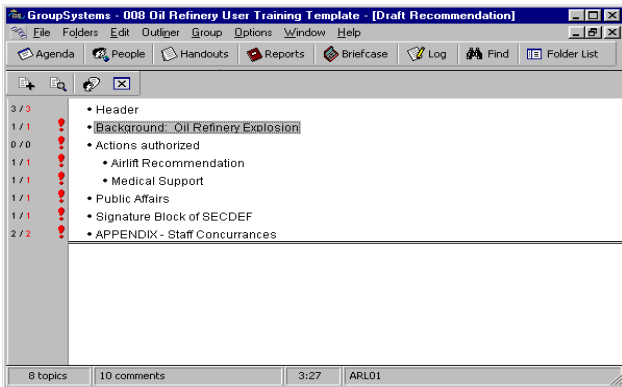


Figure 6: Example of Memorandum

**3.3.7 Group Outliner** After the decisions had been reached, a group outliner session was used with a sample action memo as shown in Figure 6. Signature blocks were created as an additional header within the Group Outliner as Appendix A. This allowed for all individuals to “sign” the document simultaneously. This signature sheet is shown in Figure 7. Normal signature pages only request the date of the signature. This effectively equalizes all signatures on the same date. That is, an organization signing the document at 8AM and another organization holding onto the document until 5:00 PM have effectively signed at the same time. In this system, all signatures were date and time stamped to the minute. This caused an interesting group dynamic to occur during training sessions and exercises, and to some extent – during operations – no one wanted to be “last.”

**3.3.8 Author Tags.** Although GroupSystems has enjoyed great success due to its anonymous feature, anonymity was only used during the feedback sessions.

Author tags were preloaded with the names of all organizations allowed to work within the system. It was decided that the name of the organization was sufficient for documenting and time stamping all comments. The individual would be required to sign their name in the signature area later.

Since information was spread out over many meetings and activities, and users worked in shifts, it was necessary to use various means to enable users to find out all information since they had last been on the system. The primary tool for this was the GroupSystems Find command. This allowed action officers to immediately see what information had come into the system by meeting and by activity, and then link directly to that piece of information.

## 4. Support Necessary

As stated earlier, to mitigate risks, support to the level of one to one coaching was designed into the methodology. The following paragraphs discuss hardware and software, training, and the organization of the support team.

### 4.1 Hardware and Software.

Hardware and software consisted of a dual Pentium 400 MhZ server with 2 GB memory, and mirrored drives. Software consisted of Microsoft NT Terminal Server and Citrix Metaframe was used as the operating system. A special version of GroupSystems Online was provided to allow for continuous connectivity, all running on the SIPRNET - DOD Secret High Network. User clients consisted of standard internet browsers.

### 4.2 Support Team.

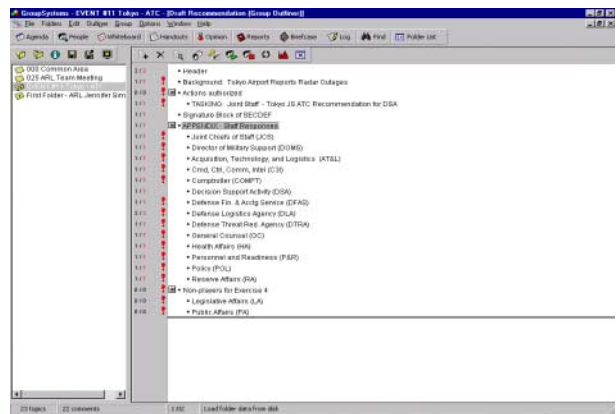


Figure 7: Example of Group Outliner signature area

The support team started out with the team leader and two facilitators. Later, individuals were added to the team to support the other functions listed in Table 1. The

individuals were research scientists, engineers, computer specialists, information management specialist, and a contract support specialist. Other than the first three team members, none had experience in the electronic collaboration environment.

The team was for the most part – stable with only two losses early on and three additions after formation. Sessions were held to train the support personnel in GroupSystems and the project in general. As stated earlier, GroupSystems was also used to provide feedback to the team leader concerning team progress.

### 4.3 Training and support

Training had as an end objective for PSA staff personnel to be able to use the system to conduct critical operations and provide information and make decisions. This required more than surface training. Despite all this

Another level of training concerned the basic use of the system. This was termed User Training and occurred numerous times during the October – December period. This consisted of an exercise to build a local restaurant guide, and a role-playing exercise where each person played the role of a PSA. Approximately 100 individuals were trained in this manner. Another set of training was developed for Watch Officers and was held on weekends in the Executive Support Center during October and November. Although over 30 reservists were exposed to the system, only about 12 were on the roster for shifts.

Due to several delays, at one point during the week of the rollover, concurrent PSA user training sessions were held at different locations. One occurred at GroupSystems.com and one at the Air Force Innovation Center at the Pentagon. PSA training continued until 29 December.

Some training was handled deskside for high level personnel. An early off-site demonstration was held at Shepherdstown, WVA on 12/13 October to expose the methodology to high-level personnel and obtain buy-in.

Four single day exercises were developed by the Decision Support Activity and played in November and December. These involved up to 28 major events within the system. ARL personnel were on hand to provide support at all times. Some areas such as the DSA were given the same individuals to provide continuity and familiarity so the PSAs would not have ‘strangers’ in the area during operations.

### 5. From Collaboration to Decision Support

Collaboration begins when a node is created by a member of the group to contribute to the group, by raising a new question, suggesting new ideas, providing new information, and so on. The process of resolution, or "making decisions," is based on gathering and assessing all of the challenging data.

There are three areas in GDSS problem definition and solution process that captures the rationale and background of the decision:

- Divergence: a collaboration process, in which conversations among/between participants freely and

<u>Roles</u>	<u>Org</u>	<u>Job function</u>
DSA Watch Officer	DSA	Individual responsible at DSA that determined if actions were to go to ESC for action.
Watch Officer	ESC	Individual responsible at ESC for staffing an action through the system.
PSA users	PSA	Individuals from OSD organizations who would provide the actual input and solutions. These included Deputy Under Secretary of Defense and Assistant Secretary of Defense personnel
Team Leader	ARL	Army Major with field experience assigned in charge of the project.
Facilitator and shift leads	ARL	Individuals responsible for making sure GroupSystems was responsive to the user needs. Also served as trainers and leaders of the various shifts
Angel/Helpers	ARL	Assisted Watch Officers and PSA users
Technographer	ARL	Assistant to facilitators
System Administrator	ARL	Responsible for the basic care and feeding of the GS server.
User Manual Developers	ARL	Development of all training materials

Table 1. Roles and Responsibilities

training, it was recognized early on that in order for individuals to be comfortable with this “unusual” way of doing business, they must have help available almost immediately. ARL support personnel were designed to be on call during operations.

Several levels of training were necessary. The first was training the support personnel and to sort out roles. In this case, GroupSystems was used to organize the team and to anonymously discuss concerns with the project. Since the project was going to require long hours during the millennium rollover, there were many such concerns.

creatively explore the problem, raising new questions and bringing in many different points of view;

- Convergence: a more focused conversation on a topic, in which users make sure they understand each other and all of the proposals, and in which consensus begins to build;
- Decision: a conversation in which a solution to the whole set of questions is synthesized and the decisions recorded (in lieu of a face-to-face meeting).

The GDSS collaboration process allowed the DSA to conduct real-time analysis and react to changes as new information or conditions were updated. The ability to quickly move from a collaborative environment to a decision analysis role provided a greater ROI for the DSA than the traditional mode of waiting for the right strategic answer to emerge over time. GDSS allowed the DSA to experience real-time analysis and decision sharing of actions requiring multiple organizations' input. Collaboration and resolution were on-going processes, with all the conversations and information that lead to the decision captured by GDSS. This is a key factor in that the rationale of the entire process of a decision's history or formulation is as important to remember as the decision itself.

## 6. Operations

As is well known, no catastrophic events occurred on 31 December. However, up until the rollover and until a few days later no one knew exactly what Y2K would bring. The following paragraphs discuss some aspects of the operations.

### 6.1 Operational period.

Formal Y2K 24/7 Operations were from 30 December 1999 to 4 January 2000. Although no major requests were made of DOD resources, seven events were processed through the system. Most of these consisted of press release oriented questions and some events were for staff information. The system housed the original request (sometimes handwritten), all discussions, and the final approved document with signature (if one was produced). Actions occurred on 31 Dec 1999, 1 Jan 2000, and 2 Jan 2000.

### 6.2 Unexpected requirements.

Although there had been four exercises, several things occurred that were not expected. A requirement developed early on 30 December to have several classified reports available "for information." These became handouts in a special meeting to handle general information not related to any one Y2K event.

### 6.3 Time factor reduced.

Some of the press releases had a suspense of less than 90 minutes. As stated earlier, the system was designed to resolve major decisions within several hours, not minutes. This precluded some of the structure and formality designed into the Group Systems activities, but the users quickly adapted to the shortened formats and responded within the time frame.

### 6.4 Monitoring by DOD staff.

DOD staff closely monitored the operations. The Deputy Secretary of Defense visited the ESC several times during operations. Several of his under secretaries and assistant secretaries actually participated on consoles within the operations, and provided comments concerning the use of the technology. Members of the Executive Secretariat to the Secretary of Defense were constant visitors to the operations and were "on" the system during operations.

## 7. Discussions

The following sections describe some factors influencing the project and implementation of GroupSystems in this fashion.

### 7.1 Training observations.

The parallel nature of the system was confusing as people were not used to the dynamics of that approach. Although users were able to use the system to input information, we discovered that two training/exercise sessions totaling four to six hours were required for PSA representatives to feel comfortable with the approach. We also discovered that it took at least two training/exercise sessions totaling 10-12 hours of exposure for the ESC Watch Officers to become comfortable with the process. After that, all users were comfortable in working in a parallel manner with others on a given task, and in working several tasks concurrently.

### 7.2 Initialization of project.

This project's goal was to shorten staffing time. Ironically, the project was hampered due to staffing of a memorandum directing participation. Training and exercises were held before the final memorandum was signed. Its absence enabled certain staff user organizations to avoid training until the last minute and in some cases protest the very use of the system in Y2K consequence management.

### 7.3 Installation of system.

There were special challenges in setting up the system in a DOD environment. Each Agency had its own unique



security to pass through. This required a briefing to the management on who, what, when, where, and why their system needed to be modified

With approval to proceed, it then required the system administrator and one of ARL's team members to modify the firewall on the network and the browser configuration on the clients. These meetings sometimes took a couple of tries to complete.

#### **7.4 Reserve Staffing.**

The ESC maintains its readiness through a staff of reserve officers. These are available on a limited basis (approximately two weeks per year) in addition to the monthly sessions. Therefore numerous individuals were exposed to the system at ESC reserve training during the weekend, but actual staffing was quite limited. In order to cover the original anticipated Y2K operations, each shift only had two or three Watch Officers.

#### **7.5 ESC Director involvement.**

The interaction of the ESC Director and his staff were crucial to "buy-in" from all PSAs and the Reserve Officers. The ESC Director also served as the definitive authority once input was obtained. When a change was made to the Watch Officer template, the reservists would continually ask: "Has the boss seen this?" Fortunately, the answer was always in the affirmative, and usually within the last 24 hours.

#### **7.6 Determining the right agencies.**

During operations, the collaboration environment greatly reduced the uncertainty in the Watch Officers' minds about which organization could offer help or should be consulted. Although the number of actual events was small, once an event was available to users, all users would respond within 5 minutes if they had any input and when that input would be available.

#### **7.7 Responding to "questions/answers" rather than a CM event.**

The actual operations required a great deal of flexibility to adapt to the "question/answer" requests. The training preparations were excellent, but, even with hindsight, several uses of the system simply would not have been developed. Operations change the plan. The collaboration system allowed expedient multi-disciplined responses to press release questions. Further, the online input seemed to be sufficient for press release questions in that management desired no formal approvals. It appeared that the initial work in providing material had built-in approval, as it was a team effort.

#### **7.8 Further Applications.**

While the system was not used for a major consequence management event, the press release questions were handled in a timely and effective manner. Discussion with DOD management indicated that press release questions are typical of day-to-day activities. They felt that collaborative systems would reduce redundant efforts, provide consolidated answers in a very short time period, and perhaps reduce the need for formal white papers and approvals. Another benefit of this effort was the realization that the software and techniques can be used to simulate roles and responsibilities of a proposed new organization structure. Players could assume roles within the new organizational structure and role-play various scenarios to better understand how the new organization would interact.

#### **7.9 Group Systems Online in action.**

The collaboration tool, GroupSystems Online, had several features that proved critical. A process template was in place, allowing the creation of specific event meetings within seconds of event information receipt. All template structures were available for Watch Officer customization. GroupSystems Online functioned without error on both remote and local area networks. The software was extremely flexible, enabling changes to the overall process while the system was operating with minimal disturbance to the users. Further, material could be developed in Categorizer, then moved to Group Outliner, and then exported to a word processing document. There were some modifications required to work within the secure environment in a continuous mode, and support from GroupSystems.com was exceptional.

#### **7.10 User Suggested System Improvements.**

As a result of applying GroupSystems Online to consequence management, users identified the need for increased functionality. Specifically, users felt that increased notification is necessary to identify new information as it appeared within GS. This notification included "red marks" at the bucket level in Categorizer and at the meeting folder level itself. The Watch Officers required an improved communication ability that would allow direct interactions with a specific user.

### **8. Results and Conclusion**

Electronic collaboration has enormous potential as an effective and efficient mechanism for certain aspects of DOD staffing and coordination processes. At the end of the Y2K monitoring period, feedback was solicited from the various users of the electronic environment. Some

comments were summarized in Table 2 with respect to the primary goals of the environment.

One user pointed out that the system did not handle crises or consequence management situation, and therefore the success of the use of this environment for crises operations is still unknown. This is a valid point. To know the answer would have required a major disaster. This was the type of event that the collaborative environment was designed to handle and it simply did not occur. Everyone is thankful that a disaster did not occur. However, it is still unknown if this methodology can truly handle consequence management operations. What can be

**References**

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Goal	Met	Response from Users Source: DOD PSA / Organizations via GDSS feedback)
Monitor status and report progress of Y2K issues, both within the DOD and externally;		All users reported ability to monitor taskings and information concurrently – "the system got information moving quickly between diverse agencies."
Identify potential or actual problems on a timely basis;		Users recognized "the value of concurrent processing versus sequential processing of actions. All were kept informed."
Respond to any problems expeditiously		Users recognized the value or collaboration (rapid information transfer) between distributed / geographically separated users – "more efficient than e-mail."
Maintain a consistent flow of fact-based information within the DOD		System assisted in the sorting of "real issues from background noise." The system is capable of handling far more complex situations.

Table 2. User Feedback

said is that the system did allow the responsible individual – the Watch Officer – to quickly gather and disseminate information. The information was current and reflected the best minds on staff. The environment was a flexible response framework as both the environment and the users easily adapted to a different structure. Rapidly changing information was handled within the handouts and within the taskers of Categorizer. Activity was recorded and time stamped. This allowed very clear, concise, and quick "back-briefings" of all events.

The key lesson learned was that information sharing with Group Systems made the job of monitoring and managing that information more efficient and effective for everyone. The success of the program suggests a model where government and collaborative technology come together for managing and solving DOD problems.

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