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# Raising Awareness of the Year 2000 Computer Problem

By

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Mr. Chairman and members of the committee, it is a pleasure to testify on behalf of the Department of Defense before your committee on the ability of public sector computer systems to properly process dates in the year 2000. The Department of Defense is very much aware of this serious problem, and we are treating it much as we would a computer virus.

In the Department of Defense, we are dramatically raising the awareness of the year 2000 problem across the board—from the department's senior leadership to its systems personnel and its suppliers in the commercial sector.

We have set in motion a campaign to find and fix the problem in our weapon systems and automated business information systems. We are also working with other federal agencies and private industry to increase awareness and solve this ubiquitous problem.

I will limit my remarks to what we in the Department of Defense believe is the magnitude of the year 2000 problem and the urgency with which we must fix this problem.

Once identified within a system, the year 2000 problem is usually trivial to solve, technically. However, it is an enormous management problem. The department has an inventory of thousands of systems and hundreds of millions of lines of computer code.

Finding, fixing, and testing date-related processing in our systems will require significant resources—resources that generally have not been planned or programed for this purpose. We face a firm deadline, and there is no “silver bullet” product in the marketplace to find, fix, and test all the changes required.

The impact of taking no action on the year 2000 problem is that we risk the high probability of severely hampering, in some cases, many defense activities. Some of those activities will involve military operations. Does this place some of these operations at risk? I believe that it does.

As a society, we in this country have become dependent on computers. We have fundamentally restructured our institutions over many years to exploit computing and telecommunications technologies. The Department of Defense reflects these institutional changes. We are dependent on our computer and telecommunication systems.

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If a particular system fails, we have generally learned how to work around an individual failure. However, if a problem that happens to be common in most of our systems were to cause failures in all of those systems at the same instant, the consequences might be catastrophic. The year 2000 problem has these characteristics.

If our personnel and payroll systems process dates incorrectly, current employees, members of the armed services, and our annuitants cannot be properly paid. If our logistics and transportation systems process dates incorrectly, people and equipment cannot be delivered to the correct place at the correct time. This, of course, could have catastrophic consequences should it happen during a time when our fighting forces are being called upon to react to a national security crisis or to lend emergency assistance. Some of our weapons systems would not function properly. Our data bases would be greatly corrupted

Inaction is simply unacceptable; coordinated and collaborative action is imperative. We have taken action to address the year 2000 issue, and we will continue to take action.

We are placing particular emphasis on our weapons systems and on systems related to safety. Fortunately, weapons systems are, for the most part, much less date-intensive than most business information systems, so there are fewer year 2000 fixes which need to be made in them. Nevertheless, we still have to check all weapon systems for the year 2000 problem. When we are dealing with weapons and their delivery systems, we must leave nothing to chance.

We are implementing year 2000 solutions in each of the military departments and defense agencies. The military departments and defense agencies are assessing the impact of the year 2000 problem and prioritizing the needed work on the systems for which they are responsible.

My office is working to facilitate the sharing of year 2000 information, such as lessons learned, best practices and status of activities. We must avoid duplication of effort as much as possible.

Each of the three military departments and our two largest defense agencies have established year 2000 home pages on the Worldwide Web. These home pages are "hot-linked" to one another. We are adding year 2000 information to our systems inventory data base so that we can better manage the interface changes that will occur related to the year 2000.

The defense information technology community is very much aware of the year 2000 date problems. We are continuing to raise the level of awareness of our customers, who are senior leaders in the functional areas within DoD, such as logistics, personnel and procurement, and the entire warfighting community.

The Department of Defense has some relatively unique year 2000 problems. Our software inventory includes software written in computer languages, such as the language Jovial, that are not widely used elsewhere. This is a legacy of past policies that permitted the proliferation of different computer languages and dialects.

While we are working aggressively toward correcting the language problem, we must also deal with the consequences of having so many computer languages to deal with. This means that we will need a wider array of software tools to help reduce the time to find and fix year 2000 problems and to validate the solutions through testing.

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Commercial off-the-shelf software tools are available only for some of the more commonly used computer programming languages, such as COBOL, C, and, of course, ADA. For many computer languages, no commercial tools are available.

Another problem is that we may find the year 2000 date problem in computer chips used only by the Department of Defense. Those chips may no longer be in production. Some of these chips are used because of special military requirements, such as in a missile. Others of these are part of the legacy of past policies that allowed broad use of military-unique specifications rather than encouraging the use of commercial, nondevelopmental items.

Secretary [of Defense William J.] Perry and Deputy Secretary [of Defense John] White are firm in their support of the use of commercial products, but DoD must still deal with its inventory of DoD-unique computer hardware components.

Although there is as yet no government wide year 2000 computer policy, the Department of Defense has been actively participating in the Federal Interagency Year 2000 Committee. We have made several recommendations that are being acted upon to help the federal sector address year 2000 problems.

We are encouraged by the work of the Office of Management and Budget in dealing aggressively with the private sector to urge them to make their products capable of properly processing dates in the year 2000 and acknowledging which products will not be able to process dates in the year 2000. Central leadership and coordination by OMB will relieve federal agencies of potentially duplicating efforts in dealing with the commercial hardware and software vendors. Addressing this problem will drain plenty enough resources without having it magnified by duplication of efforts.

We have implemented year 2000 solutions in some of our systems already. In other systems, we are planning the work as part of the normal operations and maintenance cycle. As far as what is possible or should be possible, solutions are being found by the DoD's central design activities as a normal part of their O&M activities.

The services and defense agencies must prioritize their work efforts to get the most critical things done within the resources available. For example, the Defense Finance and Accounting Service has been working this problem for a number of years (1991). However, for the majority of the Department of Defense systems, we are still assessing where year 2000 problems exist and determining the resources required to solve those problems.

We believe we will have to expend significant funds to complete the task. We are working diligently to quickly refine our assessments across the department. However, it is becoming clear that tradeoffs will be required. In some cases, there will be an adverse impact on planned system improvements. The implementation of many business process re-engineering initiatives may need to be delayed, since many of these are reliant upon the use of information technologies.

With resources for the federal government becoming increasingly scarce, DoD will continue to examine its priorities carefully when considering funding for information technology investments, including those for the services and defense agencies to fix or remedy the year 2000 problem. We must work within the constraints of overall budget realities

The resource requirements to implement year 2000 solutions extends beyond application software and DoD-unique hardware. The Department of Defense and other federal agencies have not anticipated the requirement to purchase year 2000-compliant hardware and software.

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Much hardware and systems software must be replaced or upgraded, including hundreds of thousands of personal computers.

I am increasingly concerned about the effect of the year 2000 problem within our personal computers and workstations. In this arena, we, along with the rest of the nation, are operating within the control of hardware and software industries.

In many ways, I am more concerned about the "bugs" I am not able to fix or help to fix. If some significant percentage of our off-the-shelf inventory of small computers and their software should fail, we will have an enormous, costly, and potentially perilous situation on our hands. This problem needs to be worked immediately.

The management aspects associated with the year 2000 are a real concern. With our global economy and the vast electronic exchange of information among our systems and data bases, the timing of coordinated changes in date formats is critical.

Much dialogue will need to occur in order to prevent a "fix" in one system from causing another system to "crash." If a system fails to properly process information, the result could be the corruption of other data bases, extending perhaps to databases in other government agencies or countries. Again, inaction is simply unacceptable; coordinated action is imperative.

In summary, there is much work to be done and much needed coordination among those doing the work. We have limited resources and an immovable deadline. There can be no schedule delays. Significant resources will likely be required to find, fix and test date-related processing in our thousands of systems and hundreds of millions of lines of code.

We must establish priorities for our efforts. We need to get on with isolating year 2000 problems and fixing those problems, now. We cannot spend an inordinate amount of time analyzing and assessing the problem; we do not have the time.

Mr. Chairman, I thank you for the opportunity to present the department's views on this important issue.