

Executive Summary:

- Direct DoD to adopt a strategy for rapidly transitioning DoD Information Technology (IT) to current industry standards such as cloud computing, ubiquitous access to modernized wireless systems leveraging commercial standards, abundant computing power and bandwidth that is made available as a platform, integration of mobile technologies, and the development of a DoD platform for downloading applications

Full Recommendation 10:

Proposal: Direct DoD to adopt a strategy for rapidly transitioning DoD Information Technology (IT) to current industry standards such as cloud computing, ubiquitous access to modernized wireless systems leveraging commercial standards, abundant computing power and bandwidth that is made available as a platform, integration of mobile technologies, and the development of a DoD platform for downloading applications.

Comment: The computing environment available to DoD application developers and end users is substantially behind the current state of the art in industry and academia, and is not agile enough to support the mission needs. The DoD acquisition process is extremely slow, taking on average a year for an Authorization to Operate (ATO) to get accredited. Furthermore, the DoD IT policy is inundated with detailed requirements, such as adaptation to the Risk Management Framework (RMF), and is not fast enough to keep pace with industry standards. In addition, there is a lack of transparency on how IT commodities are acquired across the DoD, which then faces the problem of having inadequate technology and maintenance cost for hardware and software that is either obsolete or no longer valuable to the Department. To enable an elastic and scalable computing environment sufficient for DoD IT needs, there must be a shift to accrediting the review processes and not just the product, and there must be a focus on service delivery instead of just managing IT.

Modern software development and execution environments require access to cloud services, modern networking (including mobile), and large scale computational infrastructure. While providing these computing capabilities in a DoD-compatible environment will require overcoming obstacles that may not be present in many commercial environments, failing to provide this infrastructure has severe consequences in terms of software-enabled innovation. For those services or software programs that cannot be run in a secure manner on DoD networks, development of an appropriately secured virtual environment could enable access to modern software development tools (including open source) that would avoid bottlenecks and inefficient computing practices.

One way many companies make computing power abundant is by adopting cloud-based cost reduction strategies based on setting and achieving metrics across the enterprise. By setting targets for reducing the unit cost of computing, storage, and network transport every year by a certain amount across the enterprise, these companies can offset volume growth with increased efficiency. DoD should adopt a similar metric for assessing progress in increasing computing abundance. DoD could even benchmark against such companies (e.g. Amazon, Google, Rackspace) to set the targets for cost per Central Processing Unit (CPU) core, cost per gigabyte of storage, and cost per gigabit per second of network transport, albeit at a less aggressive rate. This would force DoD to modernize practices, hardware, and software in ways that make usage more efficient and treat computing as a

commodity. Adopting this practice is far more than simply a cost-saving measure: where computing and bandwidth is scarce, behavior will be risk averse and technological progress will slow; where it is abundant, innovation flourishes.

While there seems to be broad consensus on the flaws in DoD's IT infrastructure, it appears that the limitations are widely perceived as an inconvenience that can be overcome by the workforce. But with an estimated 600 open IT billets and the inability for the DoD to efficiently recruit for these priority placement opportunities through the USAJobs.com platform, DoD should explore using alternative routes to attract the next generation of IT talent that will help DoD meet its IT mission needs.

The general acceptance of DoD IT being a decade or more behind the private sector has secondary and tertiary effects that have not been fully explored or documented, but are likely associated with other challenges facing the Department: difficulty recruiting and retaining human capital, especially for top STEM and cyber talent; significant costs in money, time, and productivity; unquantifiable missed opportunities to analyze all of the Department's data; negative impact on morale; and significant cyber vulnerabilities from obsolete software and networks.

Background: Despite concerns over the use of cloud computing, DoD cannot operate as a modern organization without adapting to the digital age. Abundant cloud computing power is foundational to digital organizations from large firms such as Microsoft, Oracle, IBM, and Amazon to small companies throughout the US commercial landscape.