Social Security's IT system could benefit by joining the cloud, scientist says

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The Social Security Administration (SSA) should restructure its already massive information technology (IT) systems so they can be readily scaled up, much like the systems used by Google and Amazon, William L. Scherlis, professor of computer science at Carnegie Mellon University, testified today before the House Ways and Means Committee's Social Security subcommittee.

Without such changes in the architecture of its software systems, the SSA will be hard-pressed to keep pace with the data processing demands associated with making benefit payments to 60 million people annually and maintaining Social Security numbers and associated earnings records for almost every American.

"The SSA cannot accomplish its mission without effective IT and effective IT leadership," said Scherlis, the director of Carnegie Mellon's Institute for Software Research and the acting chief technology officer of the university's Software Engineering Institute. Yet the SSA still uses IT systems that are decades old.

Tremendous improvements in processing speed, network bandwidth and data storage capacity have occurred in the 30 years since many SSA systems were developed, Scherlis noted, but the agency won't be able to leverage those improvements unless it makes IT a strategic priority and includes the agency's chief technology officer in its top decision making and management circles.

In creating a roadmap for IT improvements, Scherlis suggested that the architecture of the system is critically important. This overall design must allow for continued expansion and evolution of the system. In contrast to old-fashioned mainframe [computing systems](#), today's cloud computing architectures, which link thousands of computers that work in parallel, have proven to be easily scalable, cheap and capable of continued operation even when parts of the system fail.

Pointing to the way pioneering companies like [Google](#) and Amazon have led the way in "Big Data," Scherlis laid out a set of key steps that the SSA leadership should take to ensure that it is making the best use of taxpayer dollars on IT expenditures, setting a visionary course for an agency that studies have shown consistently lags behind the technology curve.

Scherlis recommended that the agency set consumer service goals and ways to achieve them, such as revamping websites and including data analytics to transform the SSA into a 21st century agency.

According to a recent survey of federal IT managers titled the "Big Data Gap," more than half of federal agencies indicated breaks in their system and that their data has outgrown their systems.

One of the world's leading software experts, Scherlis spent six years at the Department of Defense's Defense Advanced Research Projects Agency (DARPA) and now teaches at Carnegie Mellon, one of the top-ranked computer science programs in the world. As acting CTO at the Software Engineering Institute, he focuses on the software capability of the Department of Defense (DOD) and other agencies. Three years ago, he led an extensive National Academies study on DOD software needs titled "Critical Code: Software Producibility for Defense."

Referring to the SSA as "one of our most essential American

institutions," Scherlis provided an optimistic message to Congress for the SSA's future, noting that "Advancing a new forward-looking vision of service capability at SSA is both a great opportunity and an enormous challenge. … It can be done."

Provided by Carnegie Mellon University