

**About Booz Allen**

Booz Allen Hamilton has been at the forefront of strategy and technology consulting for 95 years. Providing a broad range of services in strategy, operations, organization and change, information technology, systems engineering, and program management, Booz Allen is committed to delivering results that endure.

**For more information, contact:****Michael Farber**

Vice President  
703/377-7780  
farber\_michael@bah.com

**Mike Cameron**

Principal  
301/543-4432  
cameron\_mike@bah.com

**David Linthicum**

Principal  
204/314-5675  
linthicum\_david@bah.com

**Gwen Morton**

Senior Associate  
703/377-1601  
morton\_gwen@bah.com

**Ted Alford**

Associate  
301/617-3894  
alford\_theodore@bah.com

## The Economics of Cloud Computing

### Addressing the Benefits of Infrastructure in the Cloud

Cloud computing is a new approach to providing IT services at a greatly reduced cost relative to current distributed IT environments. The potential savings are expected to be significant—so much so that the Office of Management and Budget is embracing cloud computing as the preferred federal IT environment. Why is this necessary? First, the federal IT budget for 2010 has grown to nearly \$76 billion, and is expected to reach \$88 billion for 2011. The federal government cannot maintain this spending trajectory. Secondly, the proportion of spend required simply to maintain IT infrastructure—at least \$20 billion, or more than 25 percent of the 2010 budget—crowds out opportunities to invest in new initiatives and technologies.

But how much cost savings can the government really expect to realize by adopting cloud computing as the preferred federal IT environment? To answer this question, Booz Allen Hamilton constructed a proprietary cost model to create Life-Cycle Cost (LCC) estimates of public, private, and hybrid clouds. We used this model, and our extensive experience in economic analysis of IT programs, to calculate three key economic measures:

- The **Net Present Value (NPV)** of out-year cost savings minus up-front investments
- The **Benefit-Cost Ratio (BCR)**, or the out-year cost savings divided by up-front investments
- The **Discounted Payback Period (DPP)**, or the length of time required for investments to be recouped from out-year savings

As it turns out, the government's expectations are justified. Cloud computing may yield:

- Life-Cycle Costs that are 65 percent lower than current architectures
- Benefit-Cost Ratios ranging from 5.7 to nearly 25, depending on the cloud deployment model selected
- Payback on investments in 3-4 years

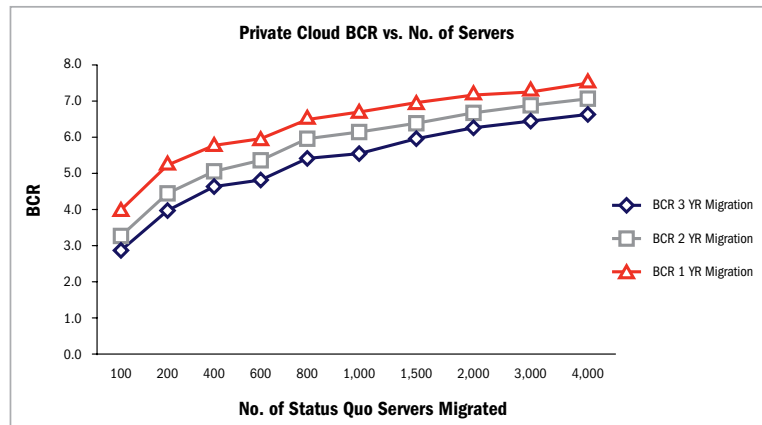
Our analysis considers how agencies might migrate to a cloud-based environment, and what the costs and potential savings might be under a variety of scenarios. Specifically, given long-standing efforts to protect the privacy and security of the federal government's data and

Ready for what's next. [www.boozallen.com/cloudcomputing](http://www.boozallen.com/cloudcomputing)

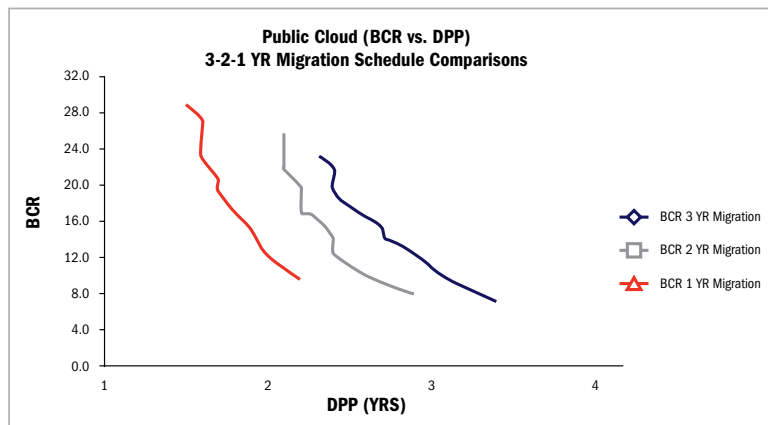
**Booz | Allen | Hamilton**  
delivering results that endure

systems, a key variable will be whether agencies seek savings by taking advantage of public clouds, by building their own private clouds or by adopting a hybrid approach.

In addition to the economic measures, our approach also provides a sensitivity analysis that revealed the key cost drivers in adopting a cloud computing approach. Factors such as scalability (the size of the data center to be transitioned into the cloud—specifically the number of servers in the data center), and the length of the migration period, can have a substantial impact on the economic benefit. Our model demonstrates that the greater the scale, and the shorter the migration period, the higher the Benefit-Cost Ratio.



In addition to insights regarding scale and time, our approach also shows an important relationship between the payback period and the achievable economic benefit. As the payback period stretches out, due to high up-front investment costs or lower cost savings in the out-years, the total economic benefit decreases.



The two figures indicate two key findings:

- **Scale Is Important.** Aggregate smaller data centers to achieve economies of scale.
- **Time Is Money.** Adequately plan transitions to the cloud, and execute them efficiently to preserve economic benefits.

Whether you're managing today's issues or looking beyond the horizon, count on us to help you be ready for what's next.