Cost Considerations in Cloud Computing

Kathryn Connor, Ian P. Cook, Isaac R. Porche, III, Daniel Gonzales

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Cloud computing has garnered the attention of the Department of Defense (DoD) as processing needs grow and budgets shrink. RAND researchers examined the cost drivers for several data management approaches for one acquisition program to develop structured considerations for analysts evaluating new cloud investments. These considerations can help guide analysis until DoD develops official guidance on cloud computing cost analysis.

RESEARCH QUESTIONS

- What are effective strategies to estimate the costs—and potential cost savings—related to cloud information storage and processing?
- What is the best way to identify, prioritize, and justify cloud resource needs?

KEY FINDINGS

Commercial Clouds Do Not Always Create Savings

- Differences in cost can arise even when the overarching framework (such as utilizing a commercial cloud vendor) is the same.
- Claims that moving to a cloud-based system is automatically cheaper cannot be taken at face value, as savings depend heavily on program requirements and the provider's pricing structure.

Costs Shift from Hardware to the Service-Level Agreement

- Cost estimators may benefit from observing how individual cost elements change as a percentage of the total program cost across the alternatives.
- The majority of the difference in software maintenance costs stems from licenses for software, rather than development.

- Facilities, leases, and service-level agreement costs rise when using an outsourced data center provider. Hardware disposal costs decrease for the program when the data center is outsourced.

RECOMMENDATIONS

- As the reliance on massive amounts of data increases in government functions, the need to consider cloud and in-house hardware solutions will only grow. Rigorous, defensible estimates require identifying the associated drivers and risks.

- Further research on cloud-specific cost estimating structure elements would be valuable to support cloud cost analysis policy development and help ensure analysis is of sufficient rigor.

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