### AWS at Emory Cloud Computing and Storage

This research proposes to utilize AWS at Emory, which is an Emory customized implementation of the Amazon Web Services computing infrastructure. AWS at Emory  provides investigators with access to many of the key research computing services offered by AWS and provides additional security and technical controls to help ensure the data are protected from unauthorized use. Within this environment, investigators and their team are able to take advantage of the scalability and elasticity of the cloud while leveraging best practices in cloud computing.

Some highlights of the service include:

* When using AWS at Emory from on campus, the traffic flows through the Emory core network to the AWS environment. Throughout the Emory network, the network devices are redundant to ensure a high standard of availability. In addition, wherever appropriate, the network traffic will flow over the Internet2 pathways to take advantage of the high speed, restricted academic network.
* As part of the account creation process, the service provisions a set of virtual private cloud environments that provide geographic redundancy for the data and services. Through this automated process, the environments are set to an approved configuration with minimal risk of variations. With all steps automated, there is a greater level of assurance around firewall rules, network configurations, and environment set ups.
* All AWS services enabled in AWS at Emory have been assessed by the Emory Information Security team for potential risks. Where applicable, the teams have built out monitoring and remediation controls to check to ensure the accounts do not implement configurations that may have unintended consequences or move them to a state of non-compliance. For example, all storage must be encrypted. If the storage is configured to be not encrypted, the monitor will notify the account owner and dismount the storage.

In addition to these Emory-specific customizations, the Emory research team benefits from: (a) Amazon’s elasticity, providing investigators with the opportunity to scale up or scale down their infrastructure based on needs. As such, the team is not paying for unused or idle infrastructure; (b) ability to tap into Amazon’s technology optimized for specific research workloads, such as high memory computing cores and high speed solid state drives (SSD); and (c) quickly spin up computing resources within minutes to increase the time for investigators and their team to conduct their science.

In support of this service, Emory has dedicated technical resources to help researchers and their teams. Emory has purchased AWS Enterprise support to provide 24x7 support for the service, and is also sponsoring training and leading a cloud community of practice, which includes participation from investigators, IT organizations, and scientific cores.

To help investigators utilize AWS, Emory IT offers free consultation on designs and cost estimations. More information can be found at: aws.emory.edu