Cornell faculty reduce cloud computing costs with Red Cloud

Cornell Red Cloud Instances less costly than AWS On-Demand Instances

A June 2020 cost comparison study of Cornell Red Cloud Instances vs. Amazon Web Services (AWS) On-Demand Instances found Red Cloud to be less costly for comparable instances.

By using Red Cloud, Cornell faculty and staff can reduce departmental expenditures for cloud computing services. These savings are more important than ever as the University seeks to reduce expenditures due to the fiscal impact of COVID-19.

Cost Comparison Findings

A medium instance on Red Cloud costs ***30% less per instance hour*** than a comparable on-demand medium instance on AWS:

Medium Instance	Red Cloud	AWS
Instance type	C1.m8	r6g.medium
Cost per instance hour	$0.0349	$0.0504
Cost 1 instance year (8,585 hours)	$300.00*	$432.68**

A large instance on Red Cloud costs ***39% less per instance hour*** than a comparable on-demand large instance on AWS:

Large Instance	**Red Cloud**	**AWS**
Instance type	C28.m224 (large)	r6g.8xlarge
Cost per instance hour	$0.98	$1.61
Cost 1 instance year (8,585 hours)	$8,413.30	$13,821.85

Red Cloud V100, 4xV100, and T4 GPU Instances provide ***exceptional cost savings*** when compared to the cost of AWS On-Demand GPU Instances.

NVIDIA V100 GPU Instance	**Red Cloud**	**AWS**
Instance type	c14.g1.m60	p3.2xlarge
Cost per instance hour	$0.49	$3.06
Cost 1 instance year (8,585 hours)	$4,206.65	$26,270.10

NVIDIA 4xV100 GPU Instance* **	**Red Cloud**	**AWS**
Instance type	c56.g4.m240	p3.8xlarge
Cost per instance hour	$1.96	$12.24
Cost 1 instance year (8,585 hours)	$16,826.60	$105,080.40

NVIDIA T4 GPU Instance	**Red Cloud**	**AWS**
Instance type	c4.t1.m20	g4dn.xlarge
Cost per instance hour	$0.14	$0.526
Cost 1 instance year (8,585 hours)	$1,201.90	$4,515,71

Note:
**Red Cloud subscriptions are $300.00 (8,585 core hours and 50GB storage with the first subscription). Discounts are available for multiple subscriptions: 8 subscriptions - 10% discount; 16 subscriptions - 20%; 32 subscriptions - 30%; 64 subscriptions - 40%.*

***AWS pricing is for On-Demand Instances. Discounts are available if instances are purchased up front as AWS Reserved Instances. For example, 1-year term AWS Reserved Instances discounts: r6g.medium instances – 40%; p3.2xlarge instances - 36%; p3.8xlarge instances - 36%. Assuming your workload is suitable for AWS Reserved Instances, even after applying these discounts, AWS Reserved Instances cost more than Red Cloud Instances (with the exception of r6g.medium instances which are similarly priced). This is not factoring in discounts for multiple Red Cloud subscriptions (see above) which offer even more savings.*

****Red Cloud 4xV100 GPU instances are available upon request.*

Red Cloud Exploratory Accounts and Subscriptions

"We're eager to do our part to reduce Cornell expenditures for cloud computing services," says Rich Knepper, deputy director of the Cornell Center for Advanced Computing (CAC). CAC operates and maintains Red Cloud computing services for Cornell faculty, students and staff.

Learn more about Red Cloud services and start a free exploratory account or fee-based subscription today. CAC will answer a question or two to help you get started. Extensive information is available on the Red Cloud wiki.

Cloud-Ready Research Applications

CAC application consulting is available if needed. Cornell faculty can write these fee-based services into their grant proposals or use department funds. CAC staff consultants can build a cloud image with all the software you need, containerize your application for portability to any cloud, or build a web-application front-end with back-end database. See our New Faculty Flyer to learn more about CAC services.

Coming Soon

We will be adding a large memory node to Red Cloud this fall (40 cores with 512GB memory).

Questions?

Request help via form (preferred) or email.

To discuss your project needs, please contact CAC deputy director Rich Knepper at rich.knepper@cornell.edu or call 812-361-0690. Demand drives Cornell's cloud acquisitions, so we welcome hearing about your future needs as well.