Amazon Web Services—Survey Results

UW Information Technology

August 2011

OVERVIEW

In Spring 2011, UW Information Technology sent a survey to University of Washington (UW) faculty, students, and staff asking about their data management needs and their use of and level of interest in Amazon Web Services (AWS). The survey was distributed through *IT Connect*, a technology newsletter that is sent out via email to the university community once a month, and through the *techsupport* email distribution list . The survey was completed by 161 participants. This report provides a brief overview of the data and key findings from the survey. Overall, while a small number of participants used Amazon Web Services, the survey responses indicate a strong level of interest in these services.

KEY FINDINGS

Data tables showing a breakdown of responses are attached. Some of the main trends in the data are as follows:

- Most respondents had never used AWS. Respondents who had used AWS were primarily from the Health Sciences and Natural Sciences. Most users of AWS were professional staff.
- When asked to rank priorities for the UW to pursue with Amazon to provide solutions for the UW, current users of AWS prioritized "Provide access to AWS using single-sign on," while non-users prioritized "Negotiate lower connectivity charges, since UW provides its own network connections to AWS." Non-users were also more interested in consolidated billing. Priorities do not fluctuate much by discipline or position (faculty, staff, etc).
- Among current non-users of AWS, there is high interest in using AWS for storage among most survey populations and disciplines. Interest in using AWS for computing is highest among research faculty and graduate students.
- Current users of AWS generally found the services easy to use, secure, and cost-effective. Most would recommend the services to others. The majority were very satisfied or satisfied with all three service areas (computing, storage, and databases).
- Non-users of AWS reported not having had the time to look into AWS and feeling that they did not yet have enough information to make an informed assessment of the services. Several were not sure where to get more information. A majority of non-users believed that AWS were relevant to their current projects.

SAMPLE OF SURVEY COMMENTS

Current Use/Strengths:

We use it for short periods of computing time (5 to 10 instances of cc1.4xlarge) for genetic analyses.

Scalability and pay/per use. It is nice to be able to spin up an image do some testing and then tear down the image as needed. AWS only charges you for the images that are running.

That we can fire up a VM in an environment that we generally trust as secure and highly-available without using any of our own resources …We'd much rather pay Amazon a few hundred bucks than build out a whole rack just to play in.

Challenges/Concerns:

Startup time of instances can vary significantly and sometimes fails completely, which is a problem since we set up clusters of them and may have 126 nodes waiting for the last 2 to come online.

Initial learning curve was very short but a little steep. It's hard to find useful preconfigured AMIs (for example, a cluster-ready AMI with basic job/queue management), so I have to configure my own.

It would be nice to have some sort of "developer pricing" where you can start/stop instances without being charged whole hours.

Clearer documents with more examples (screen shots would be nice) of the details of using the AWS system….Work on more synoptic materials that walk us through the details or put a higher level interface on it so we don't need to know the details.

Goals/Desires for Future Use:

I would like to have a place to host a clinical trials DB that is readably available, backed up and encrypted since it will have confidential patient data.

I would like to run ocean models, process model output from ocean models and visualize model output from ocean models. Run…environmental image servers on hardware that can handle more datasets from observational and model sources.

We had already been looking into the possibility of using AWS for high-throughput/grid-style computing for parallelized computation for our acoustics research… So we are very interested in hearing about…any additional common tools for scientific parallel computing.

More information [about AWS] and the ability to test it to see if it meets our needs.

Assurance of data security and the option to pick the location of the data center.

Amazon Web Services—Select Data Tables

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Respondents Grouped by School	Has Used AWS	Never Used AWS
Humanities, Social Science & Arts	2	16
Professional	3	8
Health Sciences	12	38
Natural Sciences	12	11
Engineering	7	10
College of the Environment	3	16
Other	3	17
Total	42 (26.6%)	116 (73.4%)

Respondent Status	Count	%
Staff	73	45.3
Faculty	27	16.8
Graduate student	29	18.0
Undergraduate student	15	9.3
Other	17	10.6
Total	161	100.0

AWS User Perspectives			
AWS is easy to use.	Disagree	6	14.3%
	Neutral	11	26.2%
	Agree	25	59.5%
Sufficient support is available for AWS.	Disagree	7	16.7%
	Neutral	15	35.7%
	Agree	20	47.6%
I am likely to recommend AWS to others.	Disagree	1	2.4%
	Neutral	7	16.7%
	Agree	34	81.0%
My data/files are secure with AWS.	Disagree	2	4.8%
	Neutral	13	31.0%
	Agree	27	64.3%
I use AWS so that I no longer have to maintain my own equipment.	Disagree	11	26.2%
	Neutral	9	21.4%
	Agree	22	52.4%
I use AWS to meet periodic computation needs.	Disagree	8	19.0%
	Neutral	11	26.2%
	Agree	23	54.8%

Non-AWS User Perspectives			
I don't have the knowledge to make an informed assessment as to whether or not AWS are the right solution.	Disagree	47	41.6%
	Neutral	17	15.0%
	Agree	49	43.4%
I'm not sure where to go to get more information about how AWS might meet my needs.	Disagree	47	41.2%
	Neutral	15	13.2%
	Agree	52	45.6%
AWS aren't relevant to my current projects.	Disagree	63	55.3%
	Neutral	39	34.2%
	Agree	12	10.5%
I have no need to change what I'm currently doing.	Disagree	74	63.8%
	Neutral	29	25.0%
	Agree	13	11.2%
I have security concerns about AWS.	Disagree	42	37.2%
	Neutral	28	24.8%
	Agree	43	38.1%
I am concerned about AWS and HIPAA/FERPA compliance.	Disagree	47	42.0%
	Neutral	26	23.2%
	Agree	39	34.8%
There are cheaper options available at UW that meet my needs.	Disagree	17	15.9%
	Neutral	59	55.1%
	Agree	31	29.0%
AWS is inconvenient to access because of the separate account/log-in required.	Disagree	33	30.3%
	Neutral	42	38.5%
	Agree	34	31.2%

89.5% of all respondents were interested in using one or more AWS.

Level of Interest in Each AWS		Count	%
computing	Not interested	32	29.6
	Interested	76	70.4
database	Not interested	35	31.5
	Interested	76	68.5
storage	Not interested	22	19.3
	Interested	92	80.7

Level of Interest in Each AWS by Discipline		Humanities, Social Science & Arts		Professional		Health Sciences		Natural Sciences		Engineering		College of the Environment		Other	
Computing	Not interested	5	33.3%	3	37.5%	10	31.3%	1	9.1%	5	50.0%	4	25.0%	4	25.0%
	Interested	10	66.7%	5	62.5%	22	68.8%	10	90.9%	5	50.0%	12	75.0%	12	75.0%
Database	Not interested	4	26.7%	1	12.5%	11	32.4%	3	27.3%	4	40.0%	10	62.5%	2	11.8%
	Interested	11	73.3%	7	87.5%	23	67.6%	8	72.7%	6	60.0%	6	37.5%	15	88.2%
Storage	Not interested	3	20.0%	0	.0%	5	13.5%	2	18.2%	3	30.0%	5	31.3%	4	23.5%
	Interested	12	80.0%	8	100.0%	32	86.5%	9	81.8%	7	70.0%	11	68.8%	13	76.5%

Respondents felt that UW-IT's highest priority should be to focus its efforts on negotiating lower connectivity charges (40%), followed by "pursue consolidated billing" (23.6%) and "provide access to AWS using a single sign on" (23.1%).

Ranking of UW-IT Priorities for AWS		Count	Column N %
Pursue consolidated billing (all UW bills would be grouped, so individuals would qualify for large user discounts based on UW's total use of AWS)	(1) Highest priority	34	23.6%
	(2)	48	33.3%
	(3)	34	23.6%
	(4) lowest priority	28	19.4%
Negotiate lower connectivity charges, since UW provides its own network connections to AWS	(1) Highest priority	59	40.7%
	(2)	55	37.9%
	(3)	19	13.1%
	(4) lowest priority	12	8.3%
Provide access to AWS using Single Sign On	(1) Highest priority	33	23.1%
	(2)	22	15.4%
	(3)	51	35.7%
	(4) lowest priority	37	25.9%
Arrange for Amazon to make available a campus "evangelist" to provide information and offer support to the UW community.	(1) Highest priority	20	14.1%
	(2)	18	12.7%
	(3)	38	26.8%
	(4) lowest priority	66	46.5%