Amazon Web Services

website usability study results

Prepared by the University of Washington Usability Testing Class Team

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TABLE OF CONTENTS

Cover photo: Cloud Building in New York City by Mal Milligan.

EXECUTIVE SUMMARY

Amazon's Web Services (AWS) is a cloud computing service offering compute power, storage, and IT infrastructure services. AWS allows companies and individuals to essentially 'rent' their web infrastructure paying only for what they use as they are used, instead of purchasing and maintaining expensive in-house server networks. Our group has conducted a usability study for Amazon Web Services (AWS) aiming to test how easily customers (both new and existing) could find information on several key areas of their website.

These included:

- Elastic MapReduce
- Security, data backups and up times
- Windows and .Net services
- Types of server operating systems available on EC2

The focus on specific sections of the site were also due to the time constraints and the client's desire for more information on these key areas rather than broad sweeps of the entire site.

Our goals for this study were to:

- Explore whether or not the current navigation structure and page naming system is effective and if not, why?
- Monitor the path users took to find information (without prompting).
- Look for any trouble spots.

By observing and noting the user's paths, we are aiming to provide Amazon with constructive information they can use for future implementations rather than just data on whether or not the existing implementation is 'working.'

Methodology

The testing was conducted at the University of Washington LUTE lab. We asked each participant to complete several tasks such as searching for product information, resources and pricing. The tasks were mostly user-generated (users were given a broad scenario rather than specific instructions) and one was an interview-based scenario, where we depended upon the participant's individual interests, rather than assigning them. While completing each task, participants were asked to perform the "think aloud" method. At the end of the scenarios, participants filled out a post-study questionnaire and were debriefed. All participants were video taped along with a screen capture of the study.

Participants

We divided our target users into four groups:

1. .NET Developer, New Site Visitor
2. .NET Developer, Regular Site Visitor
3. CIO/Tech Decision Maker/Buyer, New Site Visitor
4. CIO/Tech Decision Maker/Buyer, Regular Site Visitor

We recruited three participants for this usability study, two who met the criteria for '.NET Developer, Regular Site Visitor' and one who met the criteria for 'CIO/Tech Decision Maker/Buyer, Regular Site Visitor'. All users have visited the AWS website at least five times in the last year, has a basic understanding of cloud computing, and purchases servers or off-site server services as a part of his job or business.

Findings & Recommendations

Below are the findings that resulted from our tasks:

1. Pricing products posed some challenges.
2. Participants found it easy to find information they needed.
3. Participants expressed a desire for a search feature.
4. Developers were able to easily find .NET resources.
5. Product specific jargon on the Elastic MapReduce page were unfamiliar to participants.

We have organized the recommendations into two categories, global and local.

Global Recommendation:

- Include a search function for the site.

Local Recommendations:

- Provide examples of what constitutes small/medium/large on the price estimate charts.
- Increase the visibility of the AWS simple monthly calculator link on product pages.
- Include a rollover definition function for terms used on the AWS simple monthly calculator.
- Provide examples of how to use/fill out the AWS simple monthly calculator.
- Define/clarify product specific language on product pages, for example Hadoop on the Elastic MapReduce page or product names such as EC2 on the homepage menus.

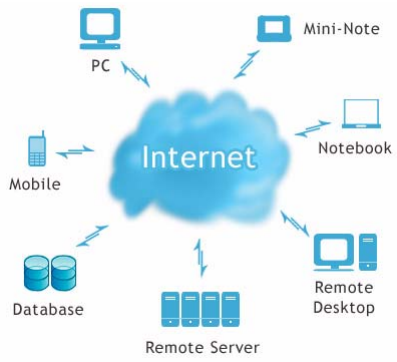
Study Assessment

For future usability studies, we recommend increasing the number of participants for each user group and allowing participants to start scenarios where they most naturally would do so and/or leave the site as needed. Another consideration is to allow participants to start scenarios where they most naturally would do so and/or leave the site as needed.

OVERVIEW

Amazon's Web Services (AWS) is a cloud computing service offering compute power, storage, and IT infrastructure services. Inspired by the cloud symbol often used to represent the internet in diagrams, cloud computing is defined as a concept in which hosted services are delivered over the Internet*.

AWS allows companies and individuals to essentially 'rent' their web infrastructure paying only for what they use as they are used, instead of purchasing and maintaining expensive in-house server networks. AWS's product, Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides re-sizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers.



The cloud symbol is often used to represent the internet in diagrams.

Purpose

The purpose of this usability study was to test how easily both new and existing customers could find information on key components of the Amazon Web Services family.

We tested the Product Details pages found at http://aws.amazon.com which serve as both a sales and information tool for prospective customers as well as a resource and education portal for existing customers. We focused on several key information areas that were identified by the client.

These included:

- Elastic MapReduce
- Security, data backups and up times
- Windows and .Net services
- Types of server operating systems available on EC2

The focus on specific sections of the site were also due to the time constraints and the client's desire for more information on these key areas rather than broad sweeps of the entire site. We did not test the Web Services themselves or their corresponding applications.

Goals

For this usability study, AWS emphasized the importance of customer education and retaining potential and existing customers during the critical information-gathering stages. They also expressed interest in examining their navigation structure. Therefore, our goals for this study were to:

- Explore whether or not the current navigation structure and page naming system is effective and if not, why?
- Monitor the path users took to find information without prompting.
- Look for any trouble spots.

By observing and noting the users' paths, we are aiming to provide Amazon with constructive information they can use for future implementations rather than justdata on whether or not the existing implementation is 'working.'

*http://searchcloudcomputing.com

METHODOLOGY

Study Session Logistics

This usability study was conducted at the University of Washington LUTE lab. We recruited three participants based on a pre-study screener. When each participant arrived, he was greeted by the moderator, was introduced to the team, and was explained the structure of the study. Each participant signed an informed consent form and filled out a profile questionnaire that gathered additional information about the participant.

Participant Tasks

We asked each participant to complete several tasks such as searching for product information, resources and pricing. The tasks were mostly user-generated meaning the users were given a broad scenario rather than specific instructions, and one task was an interview-based scenario, where we depended upon the participant's individual interests, rather than assigning them.

We decided to present the tasks and scenarios in this manner because of the exploratory nature of our study goals. User-generated tasks aimed to illustrate the effectiveness of the navigational structure in leading users to the information they sought. The interview-based scenario aimed to demonstrate the sufficiency of content presented on a topic and if the content itself was meaningful to the user.

Documenting Participant Behavior

While completing each task, participants were asked to perform the "think aloud" method, where they explained what they are doing and thinking while trying to complete the task. The "think aloud" method was chosen because it offered us the opportunity to hear users' thoughts in real time. It also allowed us to immediately address questions and gain clarification on users' comments and behaviors. The moderator described and demonstrated this method before each participant began the tasks.

Users were also asked to track where they were looking on the page(s) with the mouse. Doing so enabled us to see and record what part of the pages they were looking at as they performed their tasks. This was done because we did not use eye-tracking equipment.

At the end of the sessions, participants filled out a post-study questionnaire and were debriefed. All participants were video taped along with a screen capture of the study.

PARTICIPANT CRITERIA

We divided our target users into the four groups defined below. We recommend testing 4-8 users from each of the 4 user participant profiles.

Site Experience	.NET Developer *	CIO/Tech Decision Makers/Buyer*
New Site Visitor	■	■
Regular Site Visitor	■	■

*Client request

1. .NET Developer, New Site Visitor
   - 1+ years experience developing web applications, web services, or websites on the .NET server platform.
   - Has visited the site <5 times in the last year.
   - Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).
   - Has the authority to either make server decisions or consults/advises others on their server choices.
2. .NET Developer, Regular Site Visitor
   - 1+ years experience developing web applications, web services, or websites on the .NET server platform.
   - Has visited the site >5 times in the last year.
   - Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).
   - Has the authority to either make server decisions or consults/advises others on their server choices.
3. CIO/Tech Decision Maker/Buyer, New Site Visitor
   - Has visited the site <5 times in the last year.
   - Has the authority to, or direct others to, pay for (subscribe) to a cloud computing service.
   - Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).
4. CIO/Tech Decision Maker/Buyer, Regular Site Visitor
   - Has visited the site >5 times in the last year.
   - Has the authority to, or direct others to, pay for (subscribe) to a cloud computing service.
   - Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).

Exclusion Criteria

All of the above 4 user participant profile groups share the following exclusion criteria:

- Has never worked in the usability or market research sector.
- Has never worked for Amazon or a competing cloud computing service (e.g. Microsoft Cloud Computing, Google's CC Services, etc.)

PARTICIPANT PROFILES

We recruited three participants for this usability study, two who met the criteria for '.NET Developer, Regular Site Visitor' and one who met the criteria for 'CIO/Tech Decision Maker/Buyer, Regular Site Visitor'.

.NET Developer, Regular Site Visitors

The two participants who met this criteria have:

- Developed web applications, websites or web services on a .NET platform.
- 1-5 years experience developing on a .NET platform.
- Visited Amazon Web Services, specifically one participant who visited 1-5 times and the other visited 5+ times.
- A basic understanding (at minimum) of cloud computing.

CIO/Tech Decision Maker/Buyer, Regular Site Visitor

The participant who met this criteria:

- Has visited the Amazon Web Services website 1-5 times.
- Has a basic understanding of cloud computing.
- Purchases servers or off-site server services as a part of his job or business.
- Indicated that his staff has been a customer of Amazon Web Services' cloud computing service.
- for the last 10 months.
- Has used or currently uses, Microsoft SQL server, IIS/Asp.NET and Windows Media Server.

Both recruited participants have also either consulted or advised others making server purchasing or cloud computing purchasing decisions. We also learned that both participants have used the following products in the past year: Google App Engine, Microsoft SQL Server, IIS/Asp.Net and Windows Media Server.

Research Questions

We developed the following high-level research questions and based them on our study goals in order to guide our testing.

1. What information do test users feel like they need to make a purchasing decision? Can they find this information?
2. How easily does a user find out the costs of products available determined by their usage and/or server OS? What (if any) issues do they encounter when trying to find this information?
3. How does the user go about finding out what types of server operating systems they can run with a product? What (if any) issues do they encounter when trying to find this information?
4. Can the user find information on AWS's security and data backup processes? What paths do they take to find this information? What (if any) issues do they encounter when trying to find this information?
5. What tools and resources (forums, code samples, documentation, etc.) will users discover are available to Windows and .Net developers to start using AWS? What path did they take to find that information? Are these the tools they'd expect to find?
6. Are users able to find specific information about Elastic MapReduce (what it is? what it's for? pricing?)? If so, where do they go for this information? What paths do they take?
7. After reading the EMR pages, do users understand the information about EMR? Are there any terms that cause confusion?

SCENARIOS

Below are the scenarios and tasks that we asked participants to complete. They are catagorized as *User Generated* meaning users were given a broad scenario rather than specific instructions and *Interview-based*, where we depended upon the participant's individual interests.

Scenario 1 (User Generated)

Think about a previous project that required you to either purchase a server setup or advise someone else on a server platform or configuration decision. Imagine that you are doing that task again, and use the Amazon Web Services website (http://aws.amazon.com) to:

Task 1: Find out if they offer server configurations that would have met your needs for that project.

Task 2: Roughly price it out.

Task 3: Find any other information that you feel you may have needed to know before making your server decision.

Let's say you were required to look a little deeper into server security and data backups at Amazon, where would you go on the site to get that information and what would you look for?

Task 4: Please walk me through that.

Scenario 2 (Interview-based)

You've been asked to explain Amazon's Elastic MapReduce at a meeting in ten minutes. Your co-workers want to know what it is, how it works on Amazon Web Service and roughly how much it might cost to implement.

Task 1: Please use the Amazon Web Services web site to look up the information you might need to do this and then explain Elastic MapReduce to me like you would to a co-worker at a meeting.

Scenario 3 (Developers Only: User Generated)

Amazon Web Services has made a number of tools and documents available to help .NET developers.

Task 1: Show me where you might go to get more information on the tools available to you as a .NET developer.

RESULTS AND FINDINGS

The .NET developers were assigned all three scenarios; the CIO/Tech Decision Makers/Buyer was assigned two of the three scenarios. All three participants were able to complete all tasks assigned in each scenario.

Major Themes

1. Pricing products posed some challenges.
2. Participants found it easy to find information they needed.
3. Participants expressed a desire for a search feature.
4. Developers were able to easily find .NET resources.
5. Product specific jargon on the Elastic MapReduce page were unfamiliar to participants.

Finding 1: Pricing a product posed some challenges (Research Questions 1 and 2)

All participants were able to find information about pricing through a product page. 2 participants used the Amazon EC2 product page and one participant used the Amazon EC2 Running Microsoft Windows Server and SQL Server page. All participants scrolled down to the pricing section of the page.

AWS provides enough information on pricing	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
.Net Developer 1				■			
.Net Developer 2					■		
CIO/Tech Decision Makers/Buyer						■	

On a scale of 1-7 where 1 is strongly disagree and 7 is strongly agree, participants rated a 4, 5, and 6 to the statement, "AWS provides enough information on pricing." However, 1 of 3 participants reported missing information from the AWS website, and explained his answer with the statement "confusing price levels".

More evidence of this sentiment was reflected during the task asking participants to roughly price a server setup: 2 of 3 participants used the pricing tables, while one participant used the AWS simple monthly calculator. Participants who used the pricing tables indicated the need for clarification of the terms and server size references used in the tables.

One participant stated "...I could use [this information] to price out a configuration...although there are some unanswered questions especially with reference to this table here".

Another participant stated "So small, large, and extra large, and there's no link to tell me what that is. So that's a bit confusing." Participant 2 added, "I don't know what M1 small means".

The participant that used the AWS simple monthly calculator commented on the complexity in navigating the legend for the calculator, stating, "it's like a one-on-one relationship, but it's way up here and this is way down here", continuining, "…this is kind of wacky. So this is for [pointing to first four definitions]– these first four are for this [pointing to first four headings in calculator] I guess for this. So it's like this weird one-on-one legend".

He suggested, "tool tip would be better."

Finding 2: Participants found it easy to find information they needed (Research Question 3)

Finding the information I needed was…	Difficult 1	2	3	4	5	6	Easy 7
.Net Developer 1				■			
.Net Developer 2						■	
CIO/Tech Decision Makers/Buyer						■	

On a scale of 1-7, where 1 is difficult and 7 is easy, 2 of 3 participants rated the site a 6 on finding the information that they needed.

AWS provides enough information on products	Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7
.Net Developer 1				■			
.Net Developer 2					■		
CIO/Tech Decision Makers/Buyer						■	

Participants also indicated that there was enough information on the AWS website about products, providing ratings of 4, 5 and 6 on a scale of 1-7 where 1 is strongly disagree and 7 is strongly agree in answer to the statement "AWS provides enough information about products."

For Scenario 1, participants were asked to find information about a desired server configuration. Two participants started their search by using the product dropdown menu on the home page and navigated to the Amazon EC2 product page. While reading content on the page, one participant commented, "...their own terminology, I have to infer from what I know..." Each of the two participants found information about the operating system in different ways, one participant used the Operating Systems jump link, while the other participant scrolled down to the Operating Systems segment of the product page.

Finding 3: Participants expressed a desire for a search feature (Research Question 4)

Navigating the website was…	Difficult 1	2	3	4	5	6	Easy 7
.Net Developer 1				■			
.Net Developer 2				■			
CIO/Tech Decision Makers/Buyer						■	

On a scale of 1-7, where 1 is difficult and 7 is easy, 2 of 3 participants rated navigating the site as a 4.

During the task of finding security information, 2 of 3 participants reported a desire to have a search feature, one participant said "I want a search function", another participant said "...since they really don't provide a way to search their site, what I'm going to have to do is server whack a mole...". In order to discover security information on the AWS website, one participant used the browser's search function to find the word "security" on the current web page that he was on.

2 of 3 participants reported in their post-study surveys:

- "Though you can figure out a logical structure, search would have been useful."
- "I like a search function more than navigation bars, esp. if I'm unfamiliar with the site."

Finding 4: Developers were able to easily find .NET resources (Research Question 5)

2 of 2 .NET developers were able to find available tools and resources but approached this task differently. One participant navigated to the AWS SDK for .NET page from the News and Events link on the home page, and stated:

- ".NET SDK was nice, and easy to find," and,
- "...this SDK it's pretty clear to me that this is telling me how – if in the process of creating application I need resources it's telling me how I can use the Amazon AWS interface to create more servers, more storage".
- Another participant used the pull down menu on the home page, clicked on Resources and browsed the technical documentation, sample code libraries and articles.

Finding 5: Product specific jargon on the Elastic MapReduce page were unfamiliar to participants (Research Questions 6 and 7)

1 .NET developer was unfamiliar with the terminology:

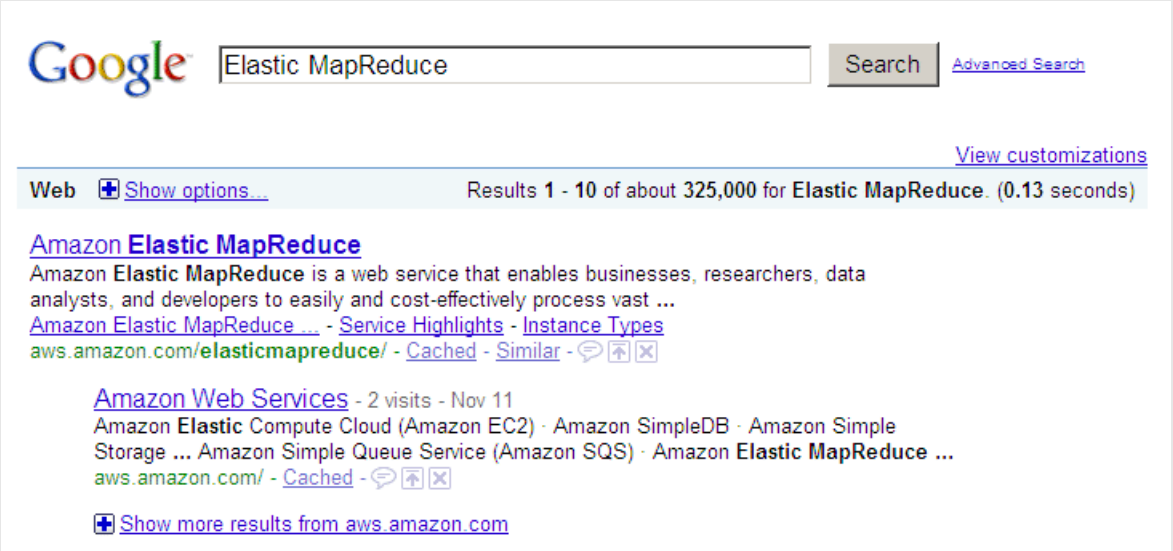
- "So it kind of feels like there are some assumptions being made about what I know about what they call things" and "They're using some non-conventional terminology, their own terminology, so that . . . well, for example, EC2 Compute unit . . . .I have to infer from what I know . . . that it refers to two servers. I don't know that for sure.

2 participants did not know what Hadoop was:

- "I don't really know what this Hadoop thing is or this Karmasphere Studio"; "...I'm getting some feeling for it [Hadoop]...but I don't know right off the bat."

All participants simply scrolled down the EMR page to learn about the product and were able to gather enough information within 10 minutes to provide an accurate description of EMR to the moderator.

- 2 participants found the information they needed from the EMR product page, while 1 participant found the information needed by visiting the EMR product page and EMR FAQs pages.
- 2 participants indicated they would have most likely begun their search for information at Google rather than the AWS page.



2 of 3 participants indicated they would have most likely begun their search for information at Google rather than the AWS page.

RECOMMENDATIONS

The following recommendations are based upon our observations and results. We have organized them into two categories global and local. The global recommendation has a broader impact and permeates through the website, whereas the local recommendations impact isolated parts of the site.

Global Recommendation

Recommendation	Related Finding
Include a search function for the site.	Finding 3: Participants expressed a desire for a search feature.

Local Recommendations

Recommendation	Related Finding
Provide examples of what constitutes small/ medium/large on the price estimate table.	Finding 1: Pricing products posed some challenges
Increase the visibility of the AWS simple monthly calculator link on product pages.	Finding 1: Pricing products posed some challenges.
Include a rollover definition function for terms used on the AWS simple monthly calculator.[a]	Finding 1: Pricing products posed some challenges.
Provide examples of how to use/fill out the AWS simple monthly calculator.[a,b]	Finding 1: Pricing products posed some challenges.
Define/clarify product specific language on product pages, for example Hadoop on the Elastic MapReduce page or product names such as EC2 on the homepage menus.	Finding 2: Participants found it easy to find information they needed. Finding 5: Product specific jargon on the Elastic MapReduce page were unfamiliar to participants.

[a] Since our testing, we have noticed that there is a a new version of the AWS simple monthly calculator. Although our recommendations refer to the previous version we feel they still apply.

[b] At the time of writing, this recommendation has already been implemented.

STUDY ASSESSMENT

This usability study has only scratched the surface of identifying areas that would enhance the user experience in the AWS site and should be viewed more as a pilot study than a comprehensive review of the site. For future usability tests, we suggest increasing the number of participants from each target user group in order to gather data on a broader range of user needs.

Another consideration is to allow participants to start scenarios where they most naturally would do so and/or leave the site as needed. All three of our participants expressed at some point that they would most likely either begin their search through Google, utilize Google to complete a scenario or use Google to search through the AWS site specifically for target information. We feel that we may have missed some real-world behaviors due to restricting tasks to the AWS site.

APPENDICES

Test Kit

Amazon Web Services (AWS)
Test Design Kit

Tom Fisher, Jessica Whyte, and Dawn Sakaguchi

Table of Contents

Product Overview

The product is Amazon's Web Services (AWS), a cloud computing service offering compute power, storage, and IT infrastructure services. In other words, instead of purchasing and maintaining expensive in-house server networks, companies and individuals can essentially 'rent' their web infrastructure from Amazon Web Services, paying only for what they use as they use it.

Rather than examining the web services themselves, we'll be looking at the Product Details pages found at http://aws.amazon.com. These pages serve as both a sales and information tool for prospective customers as well as a resource and education portal for existing customers.

Problem Statement

After hearing the client prioritize customer education and the importance of retaining potential and existing customers during the critical information-gathering stages, we intend to research how easily customers (both new and existing) can find information on the key components of the Amazon Web Services family as outlined in our study scope.

Through our research we hope to unearth whether or not the current navigation structure and page naming system is effective and if not, why?

Because Amazon is also interested in examining their currently "strict" navigation structure, we decided to monitor the path users will take to find this information (without prompting) rather than just whether or not they can find it or how long it takes. We'll also be looking for any trouble spots along the way.

By observing and noting the users' paths, we will be able to provide Amazon with constructive information they can use for future implementations rather than just data on whether or not the existing implementation is 'working.'

Research Questions

1. What information do test users feel like they need to make a purchasing decision? Can they find this information?
    - Did the user need to look at more than one page to make a decision? If so, what other pages did s/he navigate to?
    - What information was the user looking for on pages that s/he clicked on?
    - Was the user able to make a purchasing decision? If not, what information was missing?
    - Did the users find the headings useful in navigating the website? In other words, were the heading names and associated content what the user expected?

2. How does the user go about finding out what types of server operating systems they can run with Amazon EC2? What (if any) issues do they encounter when trying to find this information?
    - How does the user go about finding out information about server configuration?

- What pages does the user click on to find out information about server configuration?
- Are the headings recognized as links?
- Do users have any difficulty with the navigation headers?
- Do users click on operating system links? If so, are they finding the information they need?
- Do users feel they have found enough information about servers?

3. Can the user find information on AWS's security and data backup processes? What paths do they take to find this information? What (if any) issues do they encounter when trying to find this information?
    - What page does the user look for?
    - Where does the user look for that page?
    - Did the user find the information s/he needed on the first page navigated to? If not, what other pages does the user navigate to?
    - Does the user open the "Amazon Web Services: Overview of Security Processes" paper for more information?
    - Do users feel they have found enough information about AWS's security and data backups?

4. What tools and resources (forums, code samples, documentation, etc.) will users discover are available to Windows and .Net developers to start using AWS? What path did they take to find that information? Are these the tools they'd expect to find?
    - What headings does the user look for to find information about developer tools?
    - Do users have any difficulty with the navigation headers?
    - Did users decide to use the "take a tour" feature available on some pages?
    - Did the user utilize the toolkits or forums?
    - Do users navigate to the "Other Developer Tools" page? If so, why/why not?
    - Did the user feel they have enough information to start using AWS?

5. Are users able to find specific information about Elastic MapReduce (what it is? what it's for? pricing?)? If so, where do they go for this information? What paths do they take?
   Navigating from the home page:
    - What page does the user navigate to for information on EMR?
    - What path does the user take to get there?
    - Do users have any difficulty with the navigation headers?
    - Does the user leave the AWS site for more information? Do they return to AWS?
    - Does the user also visit the Getting Started Guide for EMR?

   Within the EMR resource page (if visited):
    - Does the user leave the AWS site for more information?
    - Does the user also visit the Getting Started Guide for EMR? Why/why not?

6. After reading the EMR pages, do users understand the information about EMR? Are there any terms that cause confusion?

    - Was the user able to provide a reasonably accurate explanation of Elastic MapReduce after navigating through and reading the AWS literature?
    - When asked (if not already addressed by the user in their explanation), does the user feel like they understand Elastic MapReduce and how it works on AWS?

- When asked (if not already addressed by the user in their explanation), what does the user identify as some of the highlights of the Elastic MapReduce service? Do these match with the features outlined on the page?

7. How easily does a user find out the costs of products available determined by their usage and/or server OS? What (if any) issues do they encounter when trying to find this information?
    - How does the user navigate to the pricing information?
    - Can users find the options they want?
    - How does the user go about calculating the estimated price?
    - What (if any) issues do they encounter trying to calculate the estimated costs of their desired service?

Scope of the Study

We will be testing the Product Details pages found at http://aws.amazon.com. However, we will be focusing on several key information areas that were identified by the client. These include:

- Elastic MapReduce
- Security, data backups and up times
- Windows and .Net services
- Types of server operating systems available on EC2

We are focusing on these specific sections of the site due to time constraints and the client's desire for more information on these key areas rather than broad sweeps of the entire site. We will not be testing the Web Services themselves or their corresponding applications.

Participant Profile

		.NET Developer*	Tech Decision Makers/Buyer*
Site Experience	**New Visitor**	**X**	**X**
	Regular Visitor	**X**	**X**

*client request

The above participant profile grid breaks our target test users into four groups:

1. .NET Developer; Regular Site Visitor

- 1+ years experience developing web applications, web services, or websites on the .NET server platform.
- Has visited the site >5 times in the last year.
- Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).
- Has the authority to either make server decisions or consults/advises others on their server choices.

2..NET Developer; New Site Visitor

- 1+ years experience developing web applications, web services, or websites on the .NET server platform.
- Has visited the site <5 times in the last year.
- Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).
- Has the authority to either make server decisions or consults/advises others on their server choices.

3. Tech Decision Maker; Regular Site Visitor

- Has visited the site >5 times in the last year.
- Has the authority to, or direct others to, pay for (subscribe) to a cloud computing service.
- Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).

4. Tech Decision Maker; New Site Visitor

- Has visited the site <5 times in the last year.
- Has the authority to, or direct others to, pay for (subscribe) to a cloud computing service.
- Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).

All of the above 4 user participant profile groups share the following exclusion criteria:

Exclusion Criteria

- Has never worked in the usability or market research sector.
- Has never worked for Amazon or a competing cloud computing service (e.g. Microsoft Cloud Computing, Google's CC Services, etc.)

We recommend testing 4-8 users from each of the above 4 user participant profiles.

Methodology

For this particular incarnation of the study, three participants will be recruited based on a pre-study screener. However, we recommend four participants from each of the above four participant profile groups. This usability study will be conducted at the University of Washington LUTE lab. The moderator will greet each participant and introduce him/her to the study. If s/he is still interested in participating, s/he will sign an informed consent and fill out a profile questionnaire that will gather additional information about the participant.

Each participant will then be asked to complete several tasks such as searching for product information, resources and pricing. The tasks are mostly user-generated (users are given a broad scenario rather than specific instructions) and one will be an interview-based scenario, meaning we'll be depending on the participant's individual interests, rather than assigning them. While completing each task, participants will be asked to perform the "think aloud" method where participants explain what they are doing and thinking while trying to complete the task. The moderator will describe and demonstrate this method. At the end of the scenarios, participants will fill out a post-study questionnaire and be debriefed. All participants will be video taped along with a screen capture of the study.

Pre-Study Screening Questionnaire

We're looking for people to participate in a usability study of a website. The purpose of this study is to make a better site. We appreciate you taking the time to talk to us and your interest in this study.

The following short questionnaire is designed to determine your suitability for this usability study.

1. Do you work in any of the following industries?

[ ] Usability testing [*exclude]*
[ ] Market research [*exclude]*

2. Do you, or have you ever worked for any of the following services?
If you worked for the parent company, but not within/for the service indicated, do not select it. For example, if you worked for Microsoft, but did not work on Azure specifically, do not select it.

[ ] Micrsoft's Azure Service [*exclude]*
[ ] Amazon.com or Amazon Web Services [*exclude]*
[ ] Google's App Engine Service [*exclude]*
[ ] IBM's SmartBusiness Cloud Computing Service [*exclude]*
[ ] GoGrid [*exclude]*
[ ] RackSpace [*exclude]*

3. Do you, or have you ever developed web applications, websites or web services on a .NET platform?

[ ] Yes [*continue on Developer stream - continue to Question 4*]
[ ] No [*continue on Tech Decision Maker stream - jump to Question 5]*

4. How long have you developed on a .NET platform?

[ ] 1-6 months [*exclude]*
[ ] 6-11 months [*exclude]*
[ ] 1-5 years [*continue]*
[ ] 5+ years [*continue]*

5. Please indicate whether or not you have visited any of the following sites in the past year and, if so, how often.

	Never	**1-5 times in the past year**	**5+ times in the past year**
Amazon Web Services (http://aws.amazon.com)	*[New visitor stream]*	[*New visitor stream]*	[*Regular visitor stream]*
Google App Engine (http://code.google.com/appengine)	[*not applicable]*	[*not applicable]*	[*not applicable]*
Microsoft's Azure (http://microsoft.com/windowsazure)	*[not applicable]*	[*not applicable]*	[*not applicable]*

6. Which of the following are you familiar with? Please indicate your level of familiarity.

	Not Familiar	Familiar (Have a basic understanding of what it is/how it works)	Working Knowledge (Have worked with on occasion)	Expert (Work with on a daily basis)
.NET servers	*[exclude if participant is on .NET developer stream]*			
Fedora 10 servers				
Cloud computing	[*exclude]*			
Python				
Apache Hive				
Microsoft SQL Server				
Hadoop				

7. Which of these activities have you done as part of your job or business in the past year?

[ ] Purchase servers or off-site server services [*continue - Tech Decision Maker or .NET Developer]*
[ ] Consult or advise others making server or server service purchasing decisions [*continue - Tech Decision Maker or .NET Developer]*
[ ] Web server infrastructure design and planning [*continue - Tech Decision Maker or .NET Developer]*

[Recruiter: If participant did not answer 'yes' to any of the above three options, exclude]

Thank you for your willingness to participate in this questionnaire. At this time...

[*if excluded]* We won't be needing your help for this particular study. But, we'd like to thank you again for your time.

[*if selected]* We'd be happy if you could join us to participate in a longer usability study of a website. The study takes place at [*study location*] and will take 60 minutes of your time. We are hosting sessions [*insert study dates and times*] and are happy to offer [*insert gratuity/thank you*] as a token of our appreciation. Will you be able to make one of these dates or times?

Recruiter Notes

[*Recruiter: We are looking for 4 participants from each of the following 4 Participant Profiles. Please note that some participants may fall into* ***multiple*** *categories. Please assign as needed or where best applicable:]*

		.NET Developer	Tech Decision Makers/Buyer
Site Experience	**New Visitor**	**X**	**X**
	Regular Visitor	**X**	**X**

The above participant profile grid breaks our target test users into four groups:

1. .NET Developer; Regular Site Visitor

- 1+ years experience developing web applications, web services, or websites on the .NET server platform.
- Has visited the site >5 times in the last year.
- Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).
- Has the authority to either make server decisions or consults/advises others on their server choices.

2. .NET Developer; New Site Visitor

- 1+ years experience developing web applications, web services, or websites on the .NET server platform.
- Has visited the site <5 times in the last year.
- Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).
- Has the authority to either make server decisions or consults/advises others on their server choices.

3. Tech Decision Maker; Regular Site Visitor

- Has visited the site >5 times in the last year.
- Has the authority to, or direct others to, pay for (subscribe) to a cloud computing service.
- Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).

4. Tech Decision Maker; New Site Visitor

- Has visited the site <5 times in the last year.
- Has the authority to, or direct others to, pay for (subscribe) to a cloud computing service.
- Is familiar with the concept of cloud computing and has a basic understanding of how it works (self-identifies).

Profile Questionnaire

The following short questionnaire is designed to determine your suitability for this usability study and to learn a little more about you.

1. Do you work in any of the following industries?

[ ] Usability testing
[ ] Market research

2. Do you, or have you ever worked for any of the following services?
If you worked for the parent company, but not within/for the service indicated, do not select it. For example, if you worked for Microsoft, but did not work on Azure specifically, do not select it.

[ ] Micrsoft's Azure Service
[ ] Amazon.com or Amazon Web Services
[ ] Google's App Engine Service
[ ] IBM's SmartBusiness Cloud Computing Service
[ ] GoGrid
[ ] RackSpace

3. Do you, or have you ever developed web applications, websites or web services on a .NET platform?

[ ] Yes
[ ] No

4. How long have you developed on a .NET platform?

[ ] 1-6 months
[ ] 6-11 months
[ ] 1-5 years
[ ] 5+ years

5. Please indicate whether or not you have visited any of the following sites in the past year and, if so, how often.

	Never	**1-5 times in the past year**	**5+ times in the past year**
Amazon Web Services (http://aws.amazon.com)			
Google App Engine (http://code.google.com/appengine)			
Microsoft's Azure (http://microsoft.com/windowsazure)			

6. Which of the following are you familiar with? Please indicate your level of familiarity.

	Not Familiar	Familiar (Have a basic understanding of what it is/how it works)	Working Knowledge (Have worked with on occasion)	Expert (Work with on a daily basis)
.NET servers				
Fedora 10 servers				
Cloud computing				
Python				
Apache Hive				
Microsoft SQL Server				
Hadoop				

7. Which of these activities have you done as part of your job or business in the past year?

[ ] Purchase servers or off-site server services
[ ] Consult or advise others making server or server service purchasing decisions
[ ] Web server infrastructure design and planning

8. Are you, either personally or through your work, currently a customer/user of Amazon Web Services' cloud computing service?
☐ Yes
☐ No

8a. If so, for roughly how long? _____

_____

9. Are you, either personally or through your work, currently a customer/user of another cloud computing service?
☐ Yes
☐ No

9a. If so, which one and for how long?_____

_____

10. When you're choosing a server operating system, what factors go into that decision (e.g.: price, open source, security, stability)? _____

_____

_____

11. Which of the following do you currently use or have used in the past year, either personally or through work? (Please check all that apply)

Databases
☐ IBM DB2
☐ IBM Imformix Dynamic Server
☐ Microsoft SQL Server
☐ MySQL

☐ Oracle Database

Application Development Environment
☐ IBM sMash
☐ JBoss Enterprise Application

☐ Ruby on Rails

Batch Processing
☐ Hadoop
☐ Condor
☐ Open MPI

Application Servers
☐ IBM Websphere Application Server
☐ Java Application Server
☐ Oracle WebLogic Server

Web Hosting
☐ Apache HTTP
☐ IIS/ Asp.Net
☐ IBM Lotus Web Content Management
☐ IBM Websphere Portal Server

Video Encoding & Streaming
☐ Wowza Media Server Pro
☐ Windows Media Server

☐ **Other** _____

☐ **Other**_____

Moderator Script

Welcome and Purpose

Thank you for coming this evening and agreeing to participate in this Web site evaluation.

[Introduce self].

You'll notice that I'm reading from this paper most of the time. I'm reading from a script so you get the same information as all the other people participating in the study.

[Introduce other people in the room. Remember, please don't indicate if an observer is from/representing Amazon]

[Offer refreshments]

The people observing this study [Use names if possible] will stay in this room to take notes and monitor our recording equipment. You and I will be in the room next door. We will videotape today's session to record your reactions and opinions. The videotape will not be used for any purpose outside of this study and we have a consent form for you to sign that explains this in more detail. Please take a moment to read the consent form and if you agree, please sign and return it to me.
Feel free to ask me if you have any questions about it. It basically tells us that you have given us permission to video tape this session.

[Administer consent form]

Thank you

Today's session will last for approximately one hour. If you want to stop for a break at any time, let me know and we can break. You're also free to leave at any time, just let me know and we'll stop the study immediately.

Before we begin, I'm going to ask you to complete a short questionnaire – this is the first of two you'll be filling out tonight. Here it is and let me know if you have any questions and when you're done.

[Administer Profile/Pre-Study Questionnaire]

Thank you.

[Give the participant their parking $$ and payment at this time]
[Go to study computer.]

Today, we are asking you to evaluate the Amazon Web Services web site by completing a set of tasks or, as we refer to them, scenarios. Once you have completed all the scenarios we have a short set of written questions for you to answer at the end of the session. Again, you're free to take a break or leave at any time.

Our goal here is to see how easy or difficult this site is to use. My role is to moderate this session and I may also be taking notes. During this time, I won't be able to offer any suggestions or hints, but I can clarify certain aspects of the scenarios. I may also ask you to clarify statements that you make from time to time.

Here are some things to keep in mind while you're working your way through the scenarios: This is not a test of you; you're testing the site. So don't worry about making mistakes because there are none. There is no right or wrong answer.

If you ever feel that you are lost or cannot complete a task with the information that you have been given, please let me know. I'll ask you what you might do in a real-world setting and then either put you on the right track or move you on to the next scenario. Finally, as you use the site, please do so as you would at home or your office.

Introduce scenarios

We have a total of __ scenarios.

[3 if the participant is the .NET developer or 2 if the participant is in the tech decision maker]

I'll read them to you and give you a written copy one at a time. I'll also be asking you to 'think aloud' as you work. 'Think Aloud' is just what it sounds like - we'll ask you to 'think aloud' as you work your way through the task. It helps us hear how you are thinking about doing a task and why things work or don't work for you. Let me demonstrate it for you. It is also helpful if you point with your mouse to track where you are looking

[Demonstrate think aloud on retail Amazon site]

Remember if you don't know what something is for, please say 'I don't know what this is for' or something like that. While you're working, I may also prompt you from time to time to ask you what you are thinking.

Once you're satisfied that you've completed a task, please tell me you're done and we'll go on to the next task. Do you have any questions before we begin?

Scenario 1

At this point, we'll start the videotape. We'll also be capturing the screen of the computer you're working on. Please remember to think out loud and tell me when you are done.

[Present participant with written copy and read scenario out loud]

Think about a previous project that required you to either purchase a server setup or advise someone else on a server platform or configuration decision. Imagine that you are doing that task again, and use the Amazon Web Services website (http://aws.amazon.com) to:

Find out if they offer server configurations that would have met your needs for that project.

Roughly price it out.

Find any other information that you feel you may have needed to know before making your server decision.

[If they don't verbalize project, ask what project was and what they'll be looking for before they start]

[End task when participant indicates complete]

[If participant does not seek out information about security and/or backups, follow up with the following:]

I noticed you didn't look up anything about Amazon's security or data backup policies. Is there a reason for that?

[Participant response]

Let's say you were required to look a little deeper into server security and data backups at Amazon, where would you go on the site to get that information and what would you look for? Please walk me through that.

Thank you. We'll now move to the next task.

Scenario 2

[Present participant with written copy and read scenario out loud,]

You've been asked to explain Amazon's Elastic MapReduce at a meeting in ten minutes. Your co-workers want to know what it is, how it works on Amazon Web Service and roughly how much it might cost to implement.

Please use the Amazon Web Services web site to look up the information you might need to do this and then explain Elastic MapReduce to me like you would to a co-worker at a meeting.

Remember, you are not being tested, the site is being tested, and there are no wrong answers. You do not have to use the full ten minutes. If at any time, you feel like you are done, or need to leave the site for more information, please let me know.

[Note start time for 10 minute task]

[End task when participant indicates complete]

Thank you.

[If the participant is in the .NET Developer stream]

We'll now move to the next task.

[If the participant is the Tech Decision Maker]

Thank you, great job, this has been a great help and concludes our scenarios.

Scenario 3

[Developers Only]

[Present participant with written copy and read scenario out loud]

Amazon Web Services has made a number of tools and documents available to help .NET developers. Show me where you might go to get more information on the tools available to you as a .NET developer. Remember to please think out loud and let me know why you're going to a particular section or resource.

If at any point, you feel like you'd normally stop or leave the site because you have enough information, or want to leave for more information, please let me know and do so.

[End task when participant indicates complete]

Do you feel enough information has been provided to you to start using .NET on Amazon Web Services?

Is there any information that you weren’t able to find, or that you think is missing?

[Participant response]

Thank you. That was great. That concludes our scenarios.

Post-Study Questionnaire

We're almost done. I have a brief questionnaire here that I'd like you to complete and then I have just a few more questions. The information you provide is for our use only. Your name is not stored with the questionnaire data. I'll be back in a couple of minutes, once you're done filling it out.

[Administer Post-Study Questionnaire]

[Go to control room and get any questions/comments from observers]

Debrief

[Collect post-study questionnaire when participant is done]

Thank you. I just have a few more questions and then we're done.

What did you think of the site in general?

Were there any issues that came up for you that we maybe didn't get to touch on during the study?

[Time permitting; address other questions or concerns, including those collected from observers]

Stop recording

Closing

Once again, I'd like to say thanks for coming today.

[Say goodbye, thank user again and show them out.]

Post Study Questionnaire

1. In relation to making a purchasing decision, please circle the number that best represents your experience:

	Strongly Disagree						Strongly Agree
AWS provides **enough** information on pricing	1	2	3	4	5	6	7
AWS provides **too much** information on pricing	1	2	3	4	5	6	7
AWS provides **enough** information on products	1	2	3	4	5	6	7
AWS provides **too much** information on products	1	2	3	4	5	6	7
AWS provides **enough** information on security	1	2	3	4	5	6	7
AWS provides **too much** information on security	1	2	3	4	5	6	7

	Difficult						Easy
2. Navigating the website was…	1	2	3	4	5	6	7

2a. Please Explain:_____

_____

_____

3. Is there any information about pricing, products and/or security that you felt was missing on the website?

☐ Yes
☐ No

3a. If so, please explain:

Pricing: _____

_____

Products: _____

_____

Security: _____

	Difficult						Easy
4. Finding the information I needed was…	1	2	3	4	5	6	7

4a. Please Explain:_____

_____

_____

Data Collection Form

Date:

Participant#:

Code Table:

S=Success	F= Frustration
P= Partial Success	H= Help from Facilitator
GU= Gave Up	LW= Leaves site

Scenario 1

Task #1: Find out if they offer server configurations that would have met your needs for that project.

Success Criteria= Lands on a product page and is able to indicate whether or not they have found enough information to make a decision

Time:_____

Code	Pathway	Notes

Task #2: Roughly price it out.
Success Criteria= Provide price information on chosen server configuration
Sub-success criteria

- *Landing on the pricing section within the product page or flexible payment service page or Amazon DevPay page*
- *Able to use price information on that page or use the simple month calculator to provide pricing information*

Time:_____

Code	Pathway	Notes

Task #3: Find any other information that you feel you may have needed to know before making your last server decision.
Success Criteria=None, completion of this task is optional.

Time:_____

Pathway	Notes

Post task Question: I noticed you didn't look up anything about Amazon's security or data backup policies. Is there a reason for that?

A:

Task #4: Where would you go on the site to get that information and what would you look for? Please walk me through that.
Success Criteria= Land on Security Center page and/or AWS opens Overview of Security Processes whitepaper

Time:_____

Code	Pathway	Notes

Scenario 1 Questions:

1. Do users feel they have found enough information about the type of server?

2. Was the user able to make a purchasing decision? If not, what information was missing?

3. Do users feel they have found enough information about AWS's security and data backups?

4. Can users find the pricing options they want?

5. How does the user go about calculating the estimated price?

6. What (if any) issues do they encounter trying to calculate the estimated costs of their desired service?

Scenario 2

Task #1: Look up the information you might need to do explain what is Elastic MapReduce (EMR)
Success Criteria= Land on the product page EMR

Time:_____

Code	Pathway	Notes

Task #2: Explain EMR to me like you would to a co-worker at a meeting
Success Criteria=Able to describe EMR. Have some of the following components:

- *EMR is a web service that enables people to effectively process vast amounts of data.*
- *Utilizes a hosted Hadoop framework running on the web-scale infrastructure*
- *Able to provision as much or as little capacity to perform data-intensive tasks for applications*
- *Able to focus on crunching or analyzing data without having to worry about time-consuming set-up, management or tuning of Hadoop clusters or the compute capacity upon which they sit.*

Time:_____

Code	Pathway	Notes

Scenario 2: Questions

1. Does the user leave the AWS site for more information? Do they return to AWS?

2. Does the user also visit the Getting Started Guide for EMR?

3. Does the user use the jump links to navigate the page? If not, why?

4. Does the user seem to understand Elastic MapReduce and how it works on AWS?

5. What does the user identify as some of the highlights of the Elastic MapReduce service? Do these match with the features outlined on the page?

Scenario 3

Task #1: Walk me through either where you've already been on the site or where you might go to get more information as a .NET developer.

Success Criteria=Lands on any page under Developer Tools (AWS Management Console, AWS Toolkit Eclipse, Other Developer Tools, Technical Documentation, Amazon Machine Images, Running Databases, or Community Forums)

Time:_____

Code	Pathway	Notes

Scenario 3: Questions

1. What headings does the user look for to find information about developer tools?

2. Did users decide to use the "take a tour" feature available on some pages?

3. Did the user utilize the toolkits or forums?

4. Do users navigate to the "Other Developer Tools" page? If so, why/why not?

UNIVERSITY OF WASHINGTON
CONSENT FORM
Student Project for TC 517: Usability Testing

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PURPOSE AND BENEFITS
Today you are being asked to participant in a usability study, which is part of a student project for a class in Usability Testing. This study provides students with the experience of evaluating the usability of technology products, processes and other consumer goods.

PROCEDURES
As a participant in this study, you may be asked to do one or more of the following:

- try a set of tasks using a product
- think out loud while performing these tasks
- filling out questionnaires
- taking part in an interview.

While participating in this study, our team will observe you and record information about the session. Additionally, we may videotape all or some of the study session.

RISK, STRESS, OR DISCOMFORT
This study will not expose you to risk, stress, or discomfort beyond that normally encountered when using a computer, being videotaped or completing questionnaires.

OTHER INFORMATION
Once the results of these studies have been tabulated, your name will be removed from all materials associated with the study in order to ensure confidentiality. Investigators named above and project sponsors will be viewing the data collected from today's study. Also the data collected will be retained and stored with project sponsors. Some of the findings from this study may be shared in an educational setting. You are free to refuse to participate in the study and may withdraw at any time.

If you have any questions, you may ask now or contact a member of the study team at the email addresses provide above.

_____
Signature of Investigator Date

The study described above has been explained to me, and I voluntarily consent to participate in it. I have had an opportunity to ask questions and understand that future questions I may have about the research or about subjects' rights will be answered by the investigators named above.

_____
Signature of Participant Date

_____
(please print name)