ISM Original Work Setup and Completion Summary

Objective/Purpose:

Now a days, technology is expanding at an exponential rate throughout the entire world. Due to this expansion in phones, laptops, desktops, tablets, and many other devices the demand for quicker processes are growing as well. But through this growth, people generally overlook the fact that everything seen on the superficial side of technology goes way deeper than what they see on everyday screens. Many professionals and cloud architects work their hardest to advance and improve the cloud architecture to store and retrieve whatever the users need. As the world continues to enlarge their sufficiency in cloud architecture, I dedicated my Original Work to create a design of my own to hopefully strengthen my knowledge and teach others about how the cloud works. When I first started my Original Work, I wanted to gain a deeper understanding of the concept and essentially expand my design to only aid any small companies with how to create a proper cloud architecture to run their business operations. But later on as I continued my research for my Original Work, I added another objective to my work, which was to show others and educate them on how to create and strengthen their own designs because whether people know it or not, they use the cloud everyday in their lives.

Methodology:

1. **Materials:**

   I completed my original work project primarily through online research in the Amazon Web Services (AWS) webpages, a website called CloudCraft, which allowed me to create

the designs that I was hoping to incorporate in my Original Work, reading a book called AWS Certified Solutions Architect Official Study Guide, and the previous research assessments that I had done to gain my background knowledge of the subject. In other words, I used my computer for all of the research assessments and websites that I used for my research and the book that I had used to study AWS resources.

2. **Procedures and Process:**

Cloud architecture is definitely a very time consuming and challenging topic to learn and eventually apply. At the beginning of this year when I chose to study this subject, i had no idea as to where I was going to go with my Original Work, but eventually once I started reading the articles for my research assessments and most importantly researching the applications in AWS, I started to gain a much better understanding as what I was supposed to do and where I was going to go with my research. At first it was difficult to understand certain terminology in this field because I had no prior knowledge about the field other than taking Computer Science in my junior year. But after using the research assessments I had done from the beginning of the year, I was able to see what I wanted to research next and so on. After the research assessments, I knew that I wanted to go towards AWS because that is where the primary focus of cloud architecture currently is. After researching about what websites I could use to create cloud diagram, I came out with CloudCraft and essentially researched the AWS applications I would use in my designs. After all of this research, I created my final design in CloudCraft and used for my Original Work accompanied with explanations.

Utilization of Higher-Level Thinking Skills:

In my opinion, everything in cloud architecture uses higher level thinking skills because it is a concept that goes way further than merely learning high school class curriculum like AP Calculus or AP Literature. Going into the project I thought I was just designing a plan for how the cloud works using products that already exist, but looking back at it, I think the explanations that I wrote in my research paper and learning about each individual product in the cloud uses a lot of high-level thinking. Because after I learned about the roles of each of the products by AWS in CloudCraft, I was required to learn about the connectivity of each of the products with other products that exist in the same cloud. Without analyzing the relationship between each of the resources by AWS, there was no way I could create the final cloud design that I made. If I had not used higher level thinking to correlate the products with one another and find out how each one works, I would have been blindly drawing a diagram without any reasoning or rationale as to what I came up with. Overall, higher level thinking for cloud architecture is mainly required in the form of being able to confidently view how each product works together in the cloud and questioning what would happen if certain applications did not exist.

Results:

I am actually excited to present my Original Work at the Research Showcase in January primarily because I am very happy with how it turned out, and I feel confident about the knowledge that I have gained through this process. When I first started researching for my Original Work I was very contemplative as to what I was going to make and how it was going to

turn out, but I am proud to say that I have learned so much about cloud computing through this project, and I have learned so much about what I am capable of doing in this field. I learned a lot about instances that are used in the cloud to provide users with the data and information they are looking to receive, the way information is saved and secured in the cloud, and how to properly secure products in the cloud without intrusions from outsiders to sensitive data. I also learned a lot about the roles of each AWS products that I used and knowing information such as what AWS Lambda does or what the Kinesis Stream is best used for will definitely come back to help me out in the future as I continue to research cloud computing. About my research paper, I am glad that I included every component of the explanations and designs because I will surely be going back to refer and reuse the information that I stored in my research paper. Instead of just trying to write a general paper over how cloud computing works or the overall idea of cloud architecture, I really tried to incorporate every aspect of the research that I had previously done to complete my Original Work, and I am very satisfied with how it turned out.

Conclusions/Interpretations:

In conclusion, I look forward to continuing my research in cloud computing to a further extent as it is a concept that keeps me occupied and interested. Through the research for my Original Work, I learned a lot about EC2 instances in cloud architecture and how different applications such as Auto Scaling, Kinesis Stream, DynamoDB, and such other products help protect and speed up the traffic flow in the cloud. I learned a lot about how resources such as CloudFront and Amazon S3 must work together in order for the cloud to stay consistent and keep away from crashing. Finally, I also learned a lot about using protective resources such as EFS to keep the

cloud safe from outsiders accessing sensitive data. Overall, my Original Work has taught me so much about AWS cloud applications along with how cloud architecture is designed, and I hope it teaches something new to others that I present to later on throughout the course of ISM as well.

Application/Meaning:

Through one of the goals, as I stated earlier in this summary, I was hoping to educate more people about the topic of cloud architecture and how the cloud must be supported by everyone in one way or the other. After I came close to finishing the rest of my Original Work, I thought of a new idea that I should have worked on from the beginning. I thought about creating a set of instructions with examples that could guide people to do their own work regarding working on cloud architecture. Although I could not achieve this for my Original Work, I look forward to doing something like this for my Final Product by the end of the year. Altogether my project on cloud architecture is beneficial to society because everyone works and stores information in the cloud one way or another. My Original Work is also beneficial specifically for businesses as they can create something they intend to help their company grow based on the architecture design I created. Overall, I think my project can help individuals who use the internet everyday in their lives as well as businesses who look forward to provide for the growth in their company.