Compressed Image Manipulation and Replication over Cloud

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ABSTRACT

Compression technique is used for reducing the quantity of data without compromising the quality of image. Image Compressions the solution associated with transmission and storage of large amount of information for digital storage^[2]. Transmission of image includes different applications. Image Compression is used to minimize the amount of memory needed to represent an image, for storage or transmission of information^[5]

Keywords

Cloud, VP8^[1], Webp^[1], Image Processing, Computation Performance

1. INTRODUCTION

A single website has many full size images and compressed low resolution thumbnail images. These may be available in static files or SQL images, managing these as the number of images increases, it becomes difficult. The web designers download images from client, compress and resize them, to fit the current design as the number increases the task becomes difficult and time consuming to download images and compress them. In this project distribution of the work load to the cloud computing as it has high processing power and low latency over multitask.

2. CONCEPTS

2.1 Image Compression

Reduce the size of image without compromising the quality of image. Compression is used to minimize the amount of memory needed to represent an image, for storage or transmission of information^[5]. Figure 1 shows the general compression and decompression using DCT^[2] and figure 2 shows the

2.2 Webp Image Codec

It is a image format to compress uploaded images on the cloud and show it over the web browser and replicate changes to the uncompressed images. This format is owned by ON2 technologies and developed by Google. This format is based on intraframe coding of vp8^[1] video format. This image format employees both lossy and lossless compression

2.3 Manipulation

For editing images to create illusion, manipulation is done. The enhancement in manipulation can be sharpness, noise removing elements or visible flaws on skin or material.

2.4 Replication

Information sharing so as to ensure consistency between the redundant resources such as hardware and software to improve reliability, fault tolerance or accessibility.

Fig 1: General compression Decompression^[2]

Fig 2. Lossy Compression Techniques

3. LITERATURE SURVEY

Sr. No	Authors	Work done	Limitations
1	Consel, C. INRIA,LaBRI ,Talence,Fran ce Reveillere,L.	Developed a platform for multimedia communication services. Client-server model (6-10-2013)	service- description language should be used
2	Sain,M.; Dongseo University, Busan, South Korea.	Explore the future of cloud middleware and the challenges ahead in cloud computing Cloud Middleware (27-30-2013)	Support open stacks, provide generic interfaces between components.
3	Bitzer,B; South Westphalia Univ.of Appl.Sci, Soest, Germany; Gebretsadik	Handling of monitoring of renewable energy in smart grid. Cloud Computing framework for smart grid applications (02-05-2013)	Availabilities of energy management software tools in smart grid.
4	Zhang ya-mei: dept of comput.sci & technol,Henan Mech & Elec .Engg coll. XinXiang, China. Cen Jun-Jie	By selecting various real time tracing to extend the image. Adobe photoshop. Method of transformation from bitmap to vector graphics based on adobe illustrator CSH (20 Aug 2010)	The images first need to be saved in PC & then open in photoshop.
5	Shrikant,S. ECE dept, NIT Roerkela, Rourkela, India. Meher,S.	Combines diff. embedded wavlet based image coding with Huffman-encoder Compression technique using HE (03-05-2013)	Reconstructio n at decoder with additional computational complexity provides significant quality
6	Bar-Ness,Y. dept.of elec engg.Newjers ey inst. Of technol, Newyork NJ,USA . Choi,S,Politi, S.	A string dictionary structure is proposed, combines the advantages of offering possibility of hardware implementation Arithmetic Coding + sliding dictionary = A string dictionary structure	Data from statistical unknown sources is difficult to compress.

		(12-06-1988)	
7	Yu shen; informationiz ation office , Donghua Univ, shanghai, china; Xie ping Gao; linlangliu; Caixia li	Approximation of original data to be reconstructed in exchange for better compression ratios Approach to develop integer to integer multivavelets (28-oct-2011)	In lossless the reconstructed image is similar to i/p image

-Consel. Et.al. has done work in developing a platform for multimedia communication services.They developed a Client-Server model on 6th October 2013. The service description language should be used in this model which is its limitation.

-Sain, M.; Dongseo University; Busan, South Korea.had done work in exploring the future of cloud middleware, challenges in cloud computing. The limitation in this model is that it can support open stacks, provide generic interfaces between components.

- Bitzer, B; South Westphalia University of Application Science, Soest, Germany; Gebretsadik done work in handling of monitoring of renewable energy in smart grid. Cloud computing framework for smart grid applications. Limitations for this model are the availabilities of energy management software tools in smart grid.

-Zhangya-Mei department of computer science technology, Henan Mechanical and Electrical Engineering College. Xinxiang, China. Cen Jun-Jie. Worked on various real times tracing to extend the image, the disadvantage is that images first need to be saved in the pc and then open in Photoshop.

- Shrikant, S. ECE department, NIT Roerkela, Rourkela, India. Meher, S worked in Combines diff. embedded wavelet based image coding with Huffman-encoder Compression technique using HE. The disadvantage is Reconstruction at decoder with additional computational complexity provides significant quality

-Bar-Ness.Y. Department of electronic engineering. New jersey inst. Of technol, Newyork NJ, USA. Choi, S, Poloto, S. worked on a string dictionary structure is proposed, combines the advantage of offering possibility of hardware implementation. The disadvantage is that the data from the statistical unknown sources is difficult to compress.

-Yu shen; informationization office, Donghua Unvi. Shanghai, China; Xie ping Gao; Linlangliu Caixia li worked for approximation of original data to be reconstructed in exchange for the better compression ratios. Approach to develop integer to integer multivavelets. The limitation is in lossless the reconstructed image is similar to the input image.

4. PROBLEM IDENTIFIED

From the existing literature survey there has been problems identified which are stated below:

From [1] the problem identified: is vp8^[1] can make best use of computation power in modern hardware for improving compression efficiency and maintaining fast decoding speed on majority devices connected to the web .

There is great potential for innovation in future version of vp8^[1] encoder and decoder

From [2] the problems identified: is the need of lossless compression, its principles, benefits, performance measures and various techniques of lossless compression

From [3] following are the problems identified: Compression algorithm depends upon 3 factors:

1. Quality of image
2. Amount of compression
3. Speed of compression

Existing system is time consuming, large data is required and continuous uploading and downloading is carried. Higher cost is required. And high resource value. Hence to propose the system named “CIMAROC”

5. SOLUTION PROPOSED

To minimize the time and developers task, to lower all the optimization load, moving towards to a solution that using various compression techniques to compress images from the cloud and download it to browser and replicate the changes to the uncompressed images. This will minimize the post uploaded changes.

5.1 Diagrams of Output

6. CONCLUSION

This project reduces developers and company load to convert and optimize images in shared way. Company assets can be used for other tasks which will make output more productive.

7. REFERENCES

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8. AUTHOR’S PROFILE

Pradnya Jadhav was born in Ahmednagar on 22nd of June 1993. She has completed her SSC studies from Sacred Heart Convent School, Ahmednagar in 2008 & secured 77.77%. After completing SSC she completed HSC from BPHE’s Society Ahmednagar College, Ahmednagar in 2011 & secured 71% currently she is pursuing Bachelors Degree in Information Technology from SAOE., Kondhwa Pune and it will complete in June 2015.

Shrikant Sonone was born in Akola on 31st of March 1991. He has completed his SSC studies from Jagruti Vidyalaya Akola, in 2006 & secured 59% after completing SSC he completed HSC from Jagruti Junior college, Akola, in 2008 & secured 66%. Currently He is pursuing Bachelor's degree in Information Technology from S.A.O.E., Kondhwa Pune and it will complete in June 2015.

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Pooja Desai was born in Lasalgaon on 1st of October 1990. She has completed her SSC studies from Jijamata Kanya Vidyalay, Lasalgaon in 2008 & secured 70%. After completing SSC she completed Diploma from K.B.P.Polytechnic, Kopergaon, in 2011 & secured 83.56%. Currently she is pursuing Bachelors Degree in Information Technology from SAOE., Kondhwa Pune and it will complete in June 2015.

N.S. Sharma has completed His bachelors of egg. Degree in Information Technology from Bharti Vidyapeeth Pune University. After Bachelors Degree in IT, he completed ME from Thapur University Patiyala Currently he is Asst. Prof. In SAOE, IT department, Pune.