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CLOUD BASED MULTIMEDIA CONTENT PROTECTION SYSTEM

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Abstract—Anoveldesignforlarge-scalemultimediacontentprotectionsystemsisproposed.Ourdesignmakesuseofcloudinfrastructuresto enablecost-effectiveness,fastdeployment, scalability, and elasticity to supportfluctuatingworkloads.Thesuggestedmethodmaybeutilisedtosecuremanyformsofmultimedia content, such as 2-D and 3-D films,photos, audio clips, songs, and music clips. Thesystem may be run on private or public clouds.Our system includestwo innovative components:Iamethodforcreating3-Dvideosignatures,and (ii) a distributed matching engine for multimediaartefacts.Thesignatureapproachgeneratesstrongandrepresentativesignaturesof3-Dfilms thatcapturedepthinformation,iscomputationallyefficient to compute and compare, and requireslittle storage. The distributed matching engine isintendedtoaccommodatevariousmultimediaelementsandachieves excellentscalability.Thesuggested solution was constructed and deployedon two clouds: Amazon cloud and our own cloud.Our studies with over 11,000 3-D movies and 1million photos demonstrate the proposed system'sgreataccuracyandscalability.

Index Terms—Multimedia, Video Copy Detection,andCloud Applications

I .INTRODUCTION

Copyrightedcontentincludingfilms,photos,andmusic clips can now be easily duplicated thanks toimprovements in multimedia content processing andrecording technology as well as the availability of freeweb hosting services. Multimedia content producersmaysufferlargefinanciallossesasaresultofunauthorised Internet distribution. Due to the largeamountofmultimediacontentthatisavailableonline and the difficulty of matching content to detect copies, finding unlawfully generated copies viatheInternetisadifficultandcomputationallyexpensiveprocess.Toenablevariable volumesofmultimediacontentbeing protected,thedesign canbescaledupanddown.Theproposedsystemconsistsofanumberofintricatelyinterconnected

parts, such as I a crawler to download a large numberof multimedia objects from online hosting sites, (ii) asignature method to create representative fingerprintsfromthemultimediaobjects,andadistributedmatchingenginetostorethesignaturesoftheoriginalobjectsandcomparethemtothequeryobjects.Additionally,thearchitectureprovidesanauxiliaryfunctionforadditionalKneighbourprocessing.The proposed system can readily supportmany forms of multimedia material thanks to its two-level design. For instance, in addition to matching in-dividualframes,thetemporalfactorsofdetectingvideocopies mustbetakenintoaccount.Findingduplicatesof images is not like this. Weused theMapReduceprogrammingmethodologyinthecreation of our matching engine.The performance ofthe suggestedsystemwillbeevaluatedrigorouslyusinggenuineimplementation,anditwillbecompared to similarresearch inacademiaandindustry.In particular, we test the full end-to-end system with11,000YouTubevideos.Aproprietarynetwork ordata centre that offers services to a small group ofpeople with restricted access and rights is referred toas a private cloud. Whether private or public, cloudcomputingstrivestoprovidesimpleaccesstocomputerresourcesandinformationtechnologys ervices. In order to hasten agency adoption of cloud-based solutions and improve the rate at which theiragenciesembracenewtechnology,thefederalgovernment switched from a ”Cloud First” strategy toa”CloudSmart”one in2017.Thecurrentmostprevalentuserofcloudcomputingtechnologiesisthoughttobethegovernm ent

II .SCOPE

Thescopeofthisprojectshowstheneedfortheproposed 3D signature method, since the state-of-the-artcommercialsystemwasnotabletohandle3Dvideos.Thesystemcanbeusedtoprotectdifferentmu ltimediatypes,includingvideos,images,audioclips, songs. The main purpose of this work is to avoidduplicationofmultimediainthecloud.Thetwovideosare considered for processing one is original and otheroneiseditedorcopiedone.UsingtheMatlabprocessing, the videos are converted into frames andtheframesarecomparedwitheachother.The matchedframesarestoredinthelocaldiskandnotifythesame

totheuserreplicationofmultimedia.Thesamematched frames are stored in the cloud. In this project,a Gabor feature algorithm is proposed to efficientlymeasure video similarity. The paper defines video as asetofframes,whicharerepresentedashighdimensionalvectorsinafeaturespace.Theworkpresents a framework for measuring video similarityacrossdifferentresolutions–bothinspatialandtemporal.Thevideosarecomparedinthenxnmatrixform5

III .LITERATURESURVEY

Z Mehmood, KA Qazi, M Tahir - 2020 [1].Anacousticfingerprintisacondensedandpowerfuldigital signature of an audio signal which is used foraudio sample identification. A fingerprint is the patternofavoiceoraudiosample.Alargenumberofalgorithms have been developed for generating suchacousticfingerprints.Thesealgorithmsfacilitatesystemsthatperformsongsearching,songide ntification, and song duplication detection. In thisstudy,acomprehensiveandpowerfulsurveyofalready developed algorithms is conducted. Four majormusicfingerprinting…

YChen,DLi,YHua,-2019:[2]Currently,anunprecedentedly vast amount of videos are hosted ontheInternetandsharedbyusersacrosstheworld.Withinthesevideos,aconsiderableportionisdupli cate or near-duplicate. Consequently, building aneffectiveyetefficientcontent-basedredundancydetectionsystemisofimportance,asthisresearchwouldbebeneficialtoavarietyof applications.Despite the progress in this field, designing a practicaldetectionsystemforwebvideoscontinuestobedifficult,becauseof the contradictions betweentheaccuracyand…

P.Ramalingam,SMurugaPrabu,-2017[3].Togiverichmediaadministrations,sightandsoundregisteringhasrisenasanessentialinnovationtoproduce, alter, and look media substance, for example,pictures,design,video,sound,thuson.Formixedmediaapplicationsandadministrationsoverthe Internetversatileremotesystems,therearesolidrequestsfordistributedcomputingduetothehugemeasureofcalculationrequiredforservingagreatmany Internet or portable clients at the same time. Thispaper investigates another technique signature check toupgradesecuritywhile putting.

A Kumari, S Tanwar, S Tyagi, N Kumar,2018[4].Withanexponentialincreasein theprovisioningofmultimedia devices over the Internet of Things (IoT), asignificant amount of multimedia data (also referred toas multimedia big data–MMBD) is being generated.Current research and development activities focus onscalar sensor data based IoT or general MMBD andoverlook the complexity of facilitating MMBD overIoT.Thispaperexaminestheuniquenatureandcomplexity of MMBD computing for IoT applicationsand develops a comprehensive taxonomy for MMBDabstractedinto anovel.

Adhikary,AK.Das,MA.Razzaque,M.Alrubaia2017.[5]Theincreasingnumberofnext-generationmultimediaservicesandsocialmediaapplicationsincloud computing putadditional challengesin efficientresource provisioningthat targets tominimize underoroverutilizationofresourcesaswellastoincreaseusersatisfaction. Most of the works in the literature focusedeither on resource estimation and schedulingapproaches or energy consumption for executing socialmediadataprocessingapplications.However,theydonot consider energy consumptioncostfor communication.

YLuo,DPeng,2021[6]Depth-image-basedrendering (DIBR) has become an accessible renderingtechnologyfor3Dvideo.Avarietyofdigitalwatermarking methods have been proposed to protectthe copyright of DIBR 3D video works. However, therobustnessandimperceptibilityoftheexistingmethods need to be improved. Therefore, we apply theDIBR rendering features to propose a watermarkingmethod to enhance the watermarking effect. First, toimprovetherobustness,wecombinetheDIBRrenderingrules toconstructsteadyfeaturedata asthe.

EFCoutinho, PAL Rego, JN de Souza2016[7]
Actually, Internet users have a broad and varied rangeofpossibleservicestoaccess,suchasenterpriseapplications and entertainment. These applications areincreasingly generating a lot of network traffic mainlydue to multimedia streaming. Cloud computing and itselasticity capability are some of the reason for suchincrease in multimedia traffic, once new

applicationsandservicesareeasilydeployedincloudenvironments.However,thewaytomeasurean devaluate the elasticity is still quite varied and can beconsideredanopen.

IV. EXISTINGSYSTEM

Both academia and business have given the issue ofpreserv- ing various forms of multimedia content a lotofattention.Watermarkingisonesolutiontothisissue, inwhich somedistinguishing informationisincorporated into the content itself and a mechanismisusedtolookforthisinformation inordertoconfirm the video's legitimacy. Before distributingmultimediaobjects,watermarkingentailsaddingwatermarks to them. It also calls for processes andsystemstolocateobjectsandcheckthatthewatermarksareaccurate.Therefore,thisstrategymigh tnotbeappropriateforalready-distributedcontentwithoutwatermarks.Thewatermarkingmethodismoresuitedforcontextsthatar erelativelycontrolled,such asthedisseminationofmultimediacontentonDVDsortheuseofspecialisedwebsitesanduniqueplay ers.

V. PROPOSEDSYSYEM

Theotherstrategyforsafeguardingmultimediacontent is content-based copy detection, which is thefocus of this research (CBCD). This strategy utilisessignatures(or)FingerprintsExtractedfromtheoriginal objects are fingerprints. Signatures can alsobeproducedusingquestionableobjectsretrievedfromthe internet. The resemblance between the originaland suspected objects is then calculated to identifypotential copies. Numerous earlier studies suggestedvarioustechniquesforcreatingandmatchingsignatures.Becausetheyrequirealotofwork, transform-domain signatures are rarely employed inactualapplications.Seesurveysforaudiofinger-printingand2Dvideofingerprintingforfurtherinformation. In addition to our cloud-based solution,wealsoprovideafreshapproachtodistributedmatching engine design and a new technique for 3Dvideofingerprinting.

VI. IMPLEMENTATION

TheFourmodulesthatmakeupthisprojectareasfollows:(i)UserVerification

(ii) FileEncryptionwithKey

(iii) ResourceTransmit(iv)SystemAnalysis.

A. ModuleDescription

(i)

USERVERIFICATION:Everyusermustauthenticatethemselvesthroughaloginprocess,a ndinordertodoso,theymustfirstregister.Oncea user registers their information, they must wait fortheadministrator'sapproval.Thesystemadministrator checks the information and grants theuser'srequesttologin.

(ii) FILEENCRYPTIONWITHKEYFileand

key are posted. The user-provided key is used toencrypttheuploadedfileusingAdvancedEncryptionStandard.Itiscrucialtoretainthesecrecy because the keys were also used to decryptthe data. The authentication of both users through atrustedauthorityisusedfortheencryptionanddecryptionprocesses,respectively.

(ii) RESOURCETRANSMITTheusermustrequest the file,andtheadministratorwillgiveittothemusingsecure

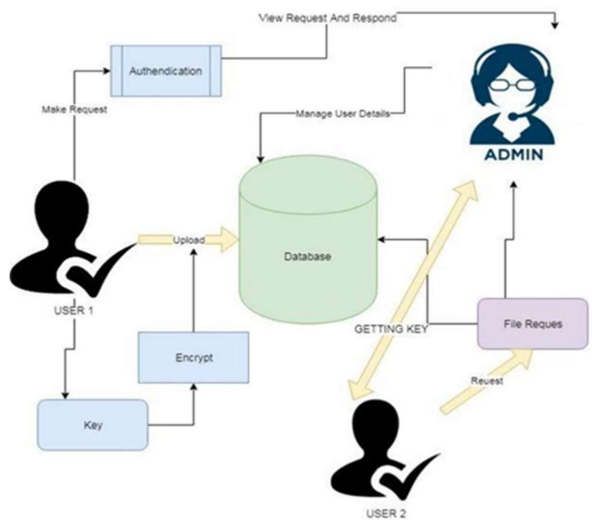

Fig.1.Architecturediagram

connectionssuchasanSSLaccount.Onlytheregistered email address gets mail. With the key theydesired, they can then decrypt. The user who made thespecificrequestcanthenshar thefile.

(i) SYSTEMANALYSIS

Afewgraphsareusedinthesuggestedsystem'sanalysis.Graphshavebeenplottedinordertoguarante ethesystem'squality.Thevariouscharts,such as pie charts, bar charts, and spline charts, willallowyoutoquicklyandclearlycomparethedetails.

B. ALGORITHM

The three block cyphers that make up AES are AES-128,AES-192,andAES-256.Eachcypherusescryptographic keys of 128 bits, 192 bits, and 256 bits toencryptanddecryptdatainblocksof128bits.Additional block widths and key lengths were intendedfortheRijndaelcypher,howeverforAES,thosefeatureswerenotimplemented. The senderand thereceiver must both be aware of and use the same secretkeysincesymmetric(alsoknownassecret-key)cyphers employ the same key for both encryption anddecryption. All key lengths are thought to be adequateforprotectinginformationclassified as"Secret"orlower,with"TopSecret"materialneedingeither192-or256-bit keys. For 128-bit keys, there are 10 rounds; for192-bit keys, there are 12 rounds; and for 256-bit keys,thereare14rounds.Aroundismadeupofanumberofprocessingsteps,suchasthesubstitution,tr ansposition,and mixing of the input plaintext with other plaintext tocreate the cypher text's final output. The number ofrounds depends on the key length; for 128-bit keys,thereare10rounds;for192-bitkeys, thereare12rounds;andfor256-bitkeys,thereare14rounds

Inthis above figure 3we can see the data we havetaking an data to uploadto the system and saved wecan see the wild life .wmv amd some images andvideofiles.

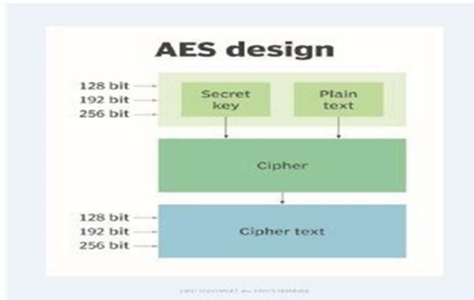

Fig4:uploadedFile

Here in this figure 4 we can see that the displayeddata was uploaded to the system and we see in theinterfaceherethewvmwasuploadedtothesystem interface here we can secure the files anddata..

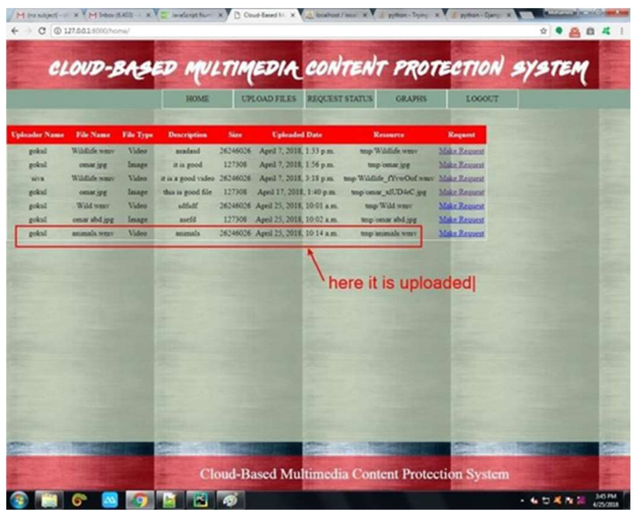

Fig2:AESDesign

V. RESULT

Aftercompletionoftheexecutiontheresultoutputsarethefollowingfigures

Fig3:DisplayingData

VI. CONCLUSION

Uploadingcopyrightedmultimediafilestoonlinestorage services like YouTube can cause considerablerevenuelossesforcontentproducers.Systemsthatmay detect unauthorised copies of multimedia files areintricateandsophisticated.Inthisresearch,wepresentedanovelmulti-cloudinfrastructure-basedsolutionformultimediacontentprotectionsystems.Thedistributedindex,whichisusedtomatchmultimediaobjectswithhighdimensions,isthesecond important element of our system. Additionally,we tested the entire content protection system againstmore than 11,000 videos, and the results demonstratedthesystem'sscalabilityandaccuracy.Finally,wecontrastedoursystemwithYouTube'sContentIDscheme.Ourfindingsdemonstratedthatlitisnecessary to develop reliable video signatures becausethe leading industry player'scurrent system is unableto identify the majority of modified 3D copies, and (ii)oursuggestedsignaturemethodcanfillthisneedbecauseis is resistant,.

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