SECURINGE-VOTINGSYSTEMUSINGBLOCKCHAINBASEDTECHNOLOGY

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Abstract

As mobile devices develop into powerful and widespread computingdevices,theiruseisalsoincreasingrapidly.However,duetoresource constraintsandconnectivityissues,mobiledeviceusersoften experience issues when running intensive applications on thedevice itself, or when loading them on a remote cloud. Ironically,mostusers'environmentsarefilledwithdeviceswithsignificantcomputationalresources.Thispaperarguesthatnearbymobiledevices can be efficiently used as a crowd-driven resource cloud tocomplementremoteclouds. Nodeheterogeneity, unknownworkercapacity, and mobility are identified as essential challenges whenschedulingtasks betweennearbymobile devices.Weintroduceawork-sharing model, called Honeybee, that uses an adaptation of thewell-known work theft method to load balancing independent jobsbetween different mobile nodes, which is not limited to randomlydroppingnodesandabletojointhesystem.Honeybee'soverallstrategyistofocusonshort-termgoals,takingadvantageofopportunities,basedontheconceptsofproactive activistsandopportunistic delegates. We evaluate our models and implement twoapplications using the Prototype framework built using Android. Wereport speeds of up to 4 with seven devices and up to 71% energysavingswith eight devices.

Keywords: ***Mobile edge-clouds, crowdsourcing, mobile crowdcomputing,offloading***

1. INTRODUCTION

Today'senvironmentisbecomingintertwinedwithmobiledeviceswithenhancedcapabilitiesequippedwithvarioussensors, wireless connectivity as well as limited computationalresources. Whether we are on the go, on the train, at the airport,in a shopping center or on the bus, a plethora of mobile devicessurround us every day [47], thus creating a resource-saturatedecosystemofmachineandhumanintelligence.buildup.-Lignans.However,beyondsometraditionalweb-basedapplications,currenttechnologydoesnotfacilitatetheexploitation of this resource-rich space of machine and humanresources. Collaborationbetweensuchsmart mobile devicescould pave the way for more computing opportunities [54], notonly by reducing crowd-source computing opportunities [29]requiring a human element, but also by solving the resourcelimitation problem inherent in mobile devices. Even by doingThe focus of this paper is on the mobile crowd (or edge-cloud).Inourview,thehumanuserofamobiledeviceisalsoa resource,whichaddsanelementofcrowdcomputing[48]tothemobilecloud aswell.Therefore,wecallthisparticularmobilecloudthemobilecrowd.Thereareseveraluniquefeaturesthatdifferentiateamobilecongestionenvironmentfrom a typical grid/distributed computing cluster, such as lowcomputation power and limited energy at nodes, node mobilityresulting in frequent disconnects, and node asymmetry [22] .Therefore,thesolutioncannotbe used from grid/distributedcomputing, and needs to be adapted to the needs of mobilecongestion environments.

2. RELATEDWORK

AMerwaday, IGuvenc [1]Communicationplaysanimportantrole during public safety operations. Since currentcommunicationtechnologiesrelyheavilyonbackbonenetworks, failure of base stations (BSs) due to natural disastersormaliciousattackscausescommunicationdifficultiesforpublicsafetyandemergencycommunications.Recently, theuse of unmanned aerial vehicles (UAVs) such as quadcopters and unmanned gliders has attracted increased attention in publicsafety communications. Theycan be used as unmanned aerialbase stations (UABS), which can be rapidly deployed as a partof heterogeneous network architecture. However, due to theirmobilecharacteristics,interferencemanagementinnetworksbecomes very challenging. In this paper, we explore the use ofUABSforpublicsafetycommunicationsduringnaturaldisasters,wherepartofthecommunicationsinfrastructurebecomesdamaged anddysfunctional(for example,after the2011earthquakeandtsunamiinJapan).Throughsimulation,we analyze the throughput gain that can be achieved by takingadvantage of the mobility feature of the UAV. Our simulationresultssuggestthatwhenthereisalossofnetworkinfrastructure, deployment of UABs at optimized locations canimprovethroughputcoverageand5thpercentilespectralefficiency of the network. In addition, correction with a higherpath-lossexponentisconsideredmoresignificant.

A Sendonaris, E Erkip[2] For pt. see i ibid., pp.1927-38.This is the second part of a two-part paper on a new form ofspatial diversity, where diversity gains are achieved throughcollaborationwithmobileusers.PartIdescribedtheusercollaboration concept and proposed a collaboration strategy foratraditionalcode-divisionmultiple-access(CDMA)system.Part II further examines the collaboration concept and considerspractical issues related to its implementation. Specifically, weexamineoptimalandsub-optimalreceiverdesigns,andthe currentperformanceanalysisforthetraditionalCDMAimplementations proposed in Part I. easy. We show that, underallscenariosstudied,cooperationisbeneficialintermsofincreasingsystemthroughputandcellcoverage,aswellasdecreasing sensitivity tochannelvariations.

E. Erkip; B. Aazhang[3] Mobileusers' dataratesandqualityofservicearelimitedbythefactthat,withintheduration of any given call, they experience severe changes insignal attenuation, necessitating the use of some sort of variety.Inthistwo-partpaper,weproposeanewformofspatialdiversity,inwhichdiversitygainsareachievedthroughcollaborationwithmobileusers.PartIdescribestheusercollaborationstrategy,whilePartII(seeibid.,p.1939-48)focusesonimplementationissuesandperformanceanalysis.Theresults show that,eventhoughtheinteruserchannelisnoisy, collaboration leads not only to increased efficiencies forbothusers,butalsotoamorerobustsystem,whereusers'achievablerates arelowerforchannelvariations.aresensitive.

YZeng, RZhang, TJLim [4]Wirelesscommunicationsystems that include unmanned aerial vehiclespromisetoprovidecost-effectivewirelessconnectivityfordeviceswithoutinfrastructurecoverage.Basedonterrestrialcommunicationsorhigh-altitudeplatforms,on-demandwireless systems with low-altitude UAVs are generally faster todeploy, more flexibly reconfigured, and more flexible than thepresence of a short-range line. The reason is likely to be bettercommunication channels. -of-sight links. However, the use ofhighlymobileandenergy-constrainedUAVsforwirelesscommunication also introduces many new challenges. In thisarticle,weprovideanoverviewofUAV-assistedwirelesscommunicationbyintroducingthebasicnetworkingarchitecture and key channel characteristics, highlighting keydesignconsiderationsaswellasnewopportunitiesforexploitation.

3. EXISTINGSYSTEM

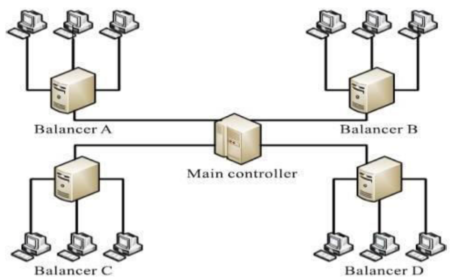
Cloud computing is efficient and scalable but maintaining thestabilitytoprocesssomanyjobsinacloudcomputingenvironment is a very complex problem, with load balancingattracts a lot of attentionto researchers. Since the job arrivalpattern is not predictable and the capacity of each node in thecloud varies, for load balancing issue, workload control is there.It is important to improve system performance and maintainstability.Load balancing schemes canbe staticor dynamic,dependingonwhetherthedynamicsofthesystemareimportant. Static plans do not use system information and areless complex whereas dynamic plans will incur additional coststothesystembutmaychangeasthestateofthesystemchanges.Adynamic schemeisused hereforitsflexibility.

Disadvantage

- Load balancing schemes can be either static ordynamic depending on whether the dynamics of thesystem isimportant.
- Staticschemesdonotusesystem information andarelesscomplex.
- Dynamicplan isusedforthisflexibility.

4. PROPOSEDWORK

Loadbalancingschemes canbe static or dynamic, dependingonwhether the dynamics of the system are important. Staticplansdonotusesysteminformationandarelesscomplexwhereas dynamic plans will incur additional costs to the systembut maychange as the state of the system changes. A dynamicscheme is used here for its flexibility. The model consists of amain controller and balancer to collect and analyze information.Thus,dynamiccontrolhaslittleeffectonotherworknodes.The state of the system then provides a basis for choosing theright load balancing strategy. The proposed method will displaythe area wise pollution rate. Things like automobiles, fertilizers,pesticides, energy production (such as coal), and agriculturalproductioncontributepollutantstothesurroundingair.Topography can amplify the effects of pollutants, trap theminside a confined area or make it easier for pollutants to settlerather thanbe carriedbythewind.



5. ARCHITECTURE

The Structural design of the proposed system is shown in thefigure-1:

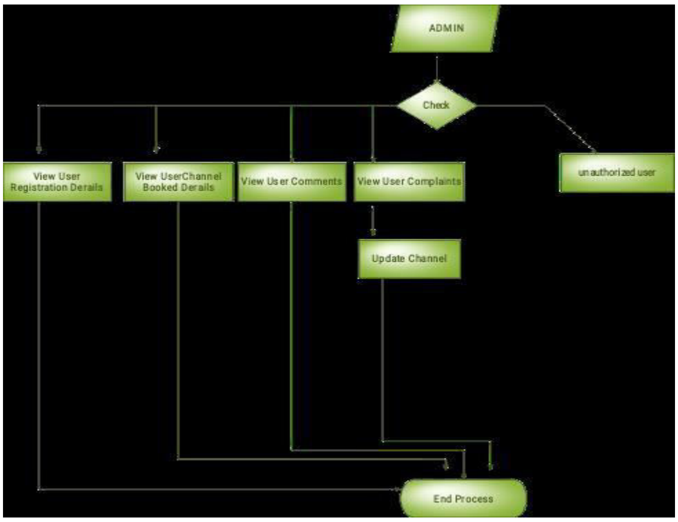


Fig1:SourcelocationprivacyprotectionArchitecture

6. MODULEDESCRIPTION

6.1 System Model

There are several cloud computingcategories withthis taskfocusedonthepubliccloud.Apubliccloudisbasedonthe standard cloud computing model with the service provided bytheserviceprovider.Alargepubliccloudwillconsistofmultiple nodes and nodes in different geographic locations. Acloudpartitionisusedtomanagethislargecloud.Cloudsegmentationis a subregion of the public cloud that consists ofdivisionsbasedongeographiclocations.Decidingwiththemain controller which cloud partition should get the job done.The partition load balancer then decides how to assign tasks tothe nodes. When the load state of the cloud partition is normal,this partition can be completed locally. If the cloud partitionloadconditionisnotnormal,thistaskshouldbe movedtoanotherpartition.

6.2 Maincontrollerand balancers

Theloadbalancingsolutionisdonebythemaincontrollers and balancers. The main controller first delegatestasks to the appropriate cloud partitions and then communicateswiththebalancersineachpartitiontorefreshthisstatusinfor mation. Since the main controller deals with informationforeachpartition,smallerdatasetswillleadtohigherprocessin grates.Ineachpartitionthebalancerscollectthestatus information from each node and then choose the rightstrategy todistribute the jobs.

6.3 Assigningjobstothecloudpartition

Whenajobhitsthepubliccloud,thefirststepischoosingtherightpa rtition.Cloudpartitionstatuscanbedivided intothree types:

IIdle: Whenthepercentageofinactivenodesexceeds balancerA,switcht oinactive state.

ii. Normal: WhenthepercentageofcommonnodesexceedsBalancerB, switchestothe normalloadstate.

iii. Overload: Whenthepercentageofoverloadednodesexceedsbalan cer C,switchestooverloaded state..

6.4 Motivation

Arelativelysimplemethodcanbeusedforthesplitpassive state with a more complex method for the normalstate.Loadbalancersswitchmethodsasthesituationchanges . Here, the idle position uses an improved roundrobin algorithm while the normal position uses a gametheorybasedloadbalancing strategy.

6.5 Loadbalance strategyforthe idlestatus

There are many simple load balancing algorithm methods likerandomalgorithm,weightroundrobinanddynamicroundrobin. For its simplicity the round robin algorithm is used here.The round robin algorithm is one of the simplest load balancingalgorithms, which forwards each new request to the next serverin the queue. The algorithm does not record the status of eachconnection, so it has no status information. In a regular roundrobinalgorithm,eachnodehasanequalchanceofbeingselected. However, in the public cloud, the configuration andperformanceofeachnodewillnotbethesame;Thus, thismethodmayoverloadsomenodes.Thus,animprovedround robinalgorithmisused,called"roundrobinbasedonloaddegree evaluation". The algorithm is still quite simple. Beforethe round robin phase, the nodes in the load balancing table aresorted byload degree from lowesttohighest.

6.6 Loadbalancingstrategy forthe normalstatus

When cloud segmentation is normal, jobs are arriving muchfasterthanintheidlestateandthesituationisfarmorecomplex,soadiffe rentstrategyisusedforloadbalancing.Everyuserwantshistasktobecomplet edintheshortestpossibletime,sothepublic cloudneeds amethodthat cancomplete all the users' tasks with a reasonable response time. Astaticloadbalancingstrategybasedongametheorywasproposed for distributed systems. And this work gives us a newreview of the load balancing problem in a cloud environment.As a distributed system implementation, load balancing in acloud computingenvironmentcanbeviewedasa game.

7. RESULTS

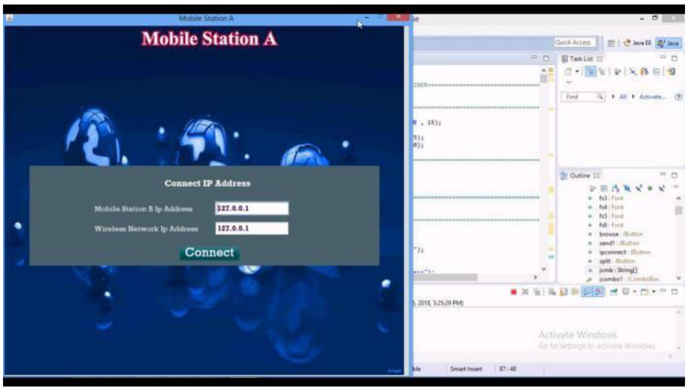


Fig2:Mobilestation.

Fig 3 :Mobilestation B

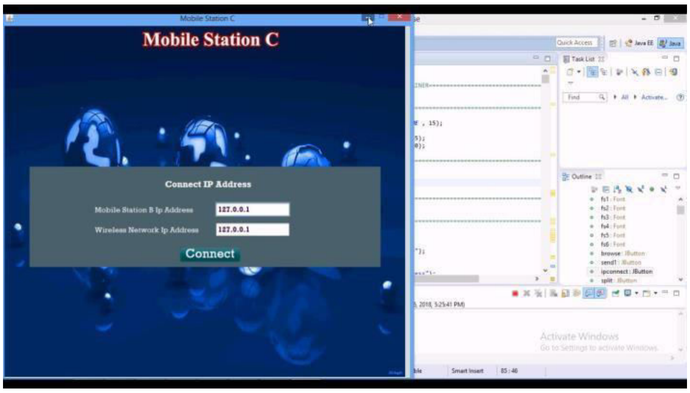


Fig4 :MobilestationC.

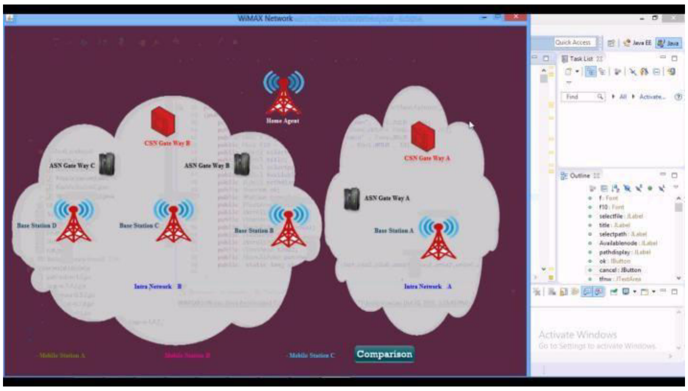


Fig 5:Network Comparison.

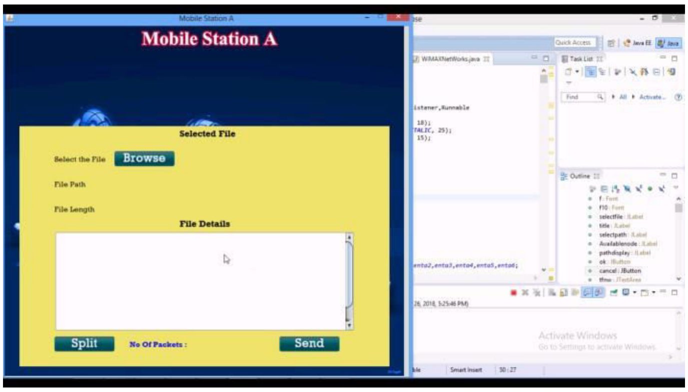


Fig 6 :MobileStation fileAUploaded

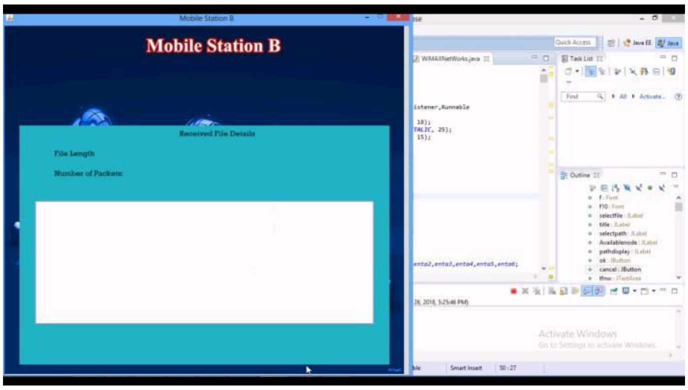


Fig7 :MobileStation BReceivedfiles

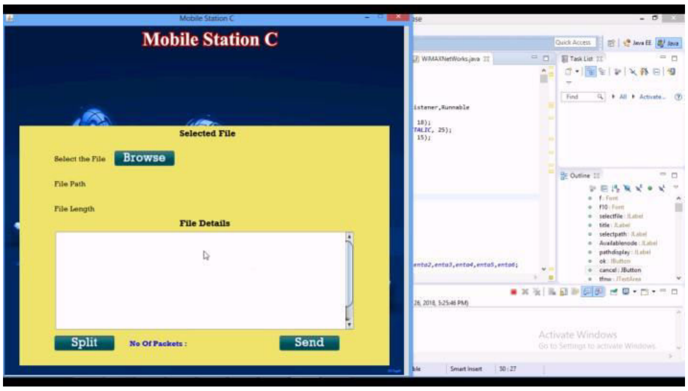


Fig8:MobileStation Cfileupload

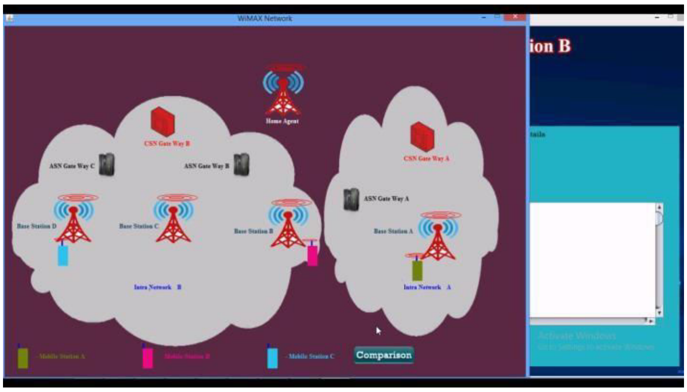


Fig9:Wimaxnetwork

Fig10:NetworkMonitoring

8. CONCLUSION

Wepresentthefollowingconclusions.First,anautonomouslocalmobiledeviceisaviablewaytogetspeedand save energy, sharingworkamong the crowd. Adding newresources up to an optimal amount can resultin increased speedand power savings. Secondly, a generalized framework can beusedtoabstractmethodsandenableparameterizationforawide variety of tasks made up of independent jobs. Third, theinherentchallengesofmobilecomputingsuchasrandomdisconnections, nopriorinformationonparticipatingnodes,andfrequentfluctuationsinresourceavailabilitycanbesuccessfullyaccommodatedthroughfaulttolerance methodsand workevasionmechanisms.

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