March 2021: Top 10 Downloaded Articles in Computer Networks & Communications

International Journal of Computer Networks & Communications (IJCNC)

http://airccse.org/journal/ijcnc.html

ISSN 0974 - 9322 (Online) ; 0975 - 2293 (Print)

PROPOSED LOAD BALANCING ALGORITHM TO REDUCE RESPONSE TIME AND PROCESSING TIME ON CLOUD COMPUTING

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ABSTRACT

Cloud computing is a new technology that brings new challenges to all organizations around the world. Improving response time for user requests on cloud computing is a critical issue to combat bottlenecks. As for cloud computing, bandwidth to from cloud service providers is a bottleneck. With the rapid development of the scale and number of applications, this access is often threatened by overload. Therefore, this paper our proposed Throttled Modified Algorithm(TMA) for improving the response time of VMs on cloud computing to improve performance for end-user. We have simulated the proposed algorithm with the CloudAnalyts simulation tool and this algorithm has improved response times and processing time of the cloud data center.

KEYWORDS

Load balancing; response time; cloud computing; processing time.

For More Details : **https://aircconline.com/ijcnc/V10N3/10318cnc07.pdf**

Volume Link : **http://airccse.org/journal/ijc2018.html**

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INTRUSION PREVENTION/INTRUSION DETECTION SYSTEM (IPS/IDS) FOR WIFI NETWORKS

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ABSTRACT

The nature of wireless networks itself created new vulnerabilities that in the classical wired networks do not exist. This results in an evolutional requirement to implement new sophisticated security mechanism in form of Intrusion Detection and Prevention Systems. This paper deals with security issues of small office and home office wireless networks. The goal of our work is to design and evaluate wireless IDPS with use of packet injection method. Decrease of attacker's traffic by 95% was observed when compared to attacker's traffic without deployment of proposed IDPS system.

KEYWORDS

Deauthentification, Intrusion detection, Intrusion prevention, Packet injection, WiFi

For More Details: **http://airccse.org/journal/cnc/6414cnc07.pdf**

Volume Link: **http://airccse.org/journal/ijc2014.html**

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LOAD BALANCING ALGORITHM FOR EFFICIENT VM ALLOCATION IN HETEROGENEOUS CLOUD

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ABSTRACT

Cloud computing is a growing service computing trend that offers users a range of on-demand variety of services from applications, processing capability, and storage based on the concept of the “Pay-As-PerUse” model. Organizations from every sector are now realizing the benefits offered by cloud computing technology and moving towards the cloud. Cloud computing offers numerous advantages over conventional computing. However, it still faces a few challenges such as resource utilization in a cloud data centre and quality of service to the end-users due to improper workload balance among available resources. Heterogeneous cloud resources also impact cloud systems overall performance. We proposed an enhanced load balancing algorithm in this research paper for efficient VM allocation in a heterogeneous cloud. Our proposed algorithm allocates independent user tasks or requests to available virtual machines in cloud datacentre efficiently to manage proper load balancing. This algorithm is aimed at minimizing user request response time and the time required for data centre processing. The results obtained showed a significant reduction in user request response time and data centre processing time as compared to “Throttled” and “Round Robin (RR)” algorithms.

KEYWORDS

Load Balancing, Heterogeneous Cloud Environment, Response Time, Datacentre Processing Time, Independent Task.

For More Details : **https://aircconline.com/ijcnc/V12N1/12120cnc06.pdf**

Volume Link : **http://airccse.org/journal/ijc2020.html**

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AN EXACT ANALYTICAL MODEL FOR AN IOT NETWORK WITH MMPP ARRIVALS

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ABSTRACT

Analytical modeling of the Internet of Things (IoT) networks is challenging. This is due to the presence of a large number of devices in these networks and the complexity of the priorities between different types of traffic. Taking these aspects into account, the objective of this paper is to analyze the performance of an IoT network where the IoT devices work independently of one another. To this end, we developed a novel multi-dimensional Continuous-Time Markov Chain (CTMC) model with threshold-based preemption. In this model, each IoT device is modeled as a Markov Modulated Poisson Process (MMPP) that can transmit regular and alarm packets. Alarm packets have higher priority over regular packets. To measure access to the channel between alarm and regular packets, we introduced a threshold parameter where the threshold is the number of packets in the alarm queue that indicates when preemption starts. The performance measures include blocking probability, the average delay of regular packets and alarm packets, discard rate , and success probability of regular packets. Comprehensive numerical analysis was conducted. Our results indicate that impact of the threshold on performance measures is higher on the boundary values of the threshold. The model was proven to be efficient in analyzing the performance of IoT networks on a wide range of parameter values. These results may be used in the future to develop and assess a protocol that utilizes a scheduling algorithm with a dynamic preemption threshold to optimize the performance of the IoT network.

KEYWORDS

Continuous-Time Markov Chain, IoT, MMPP.

For More Details : **https://aircconline.com/ijcnc/V13N1/13121cnc06.pdf**

Volume Link : **http://airccse.org/journal/ijc2021.html**

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ANALYSIS OF LTE RADIO LOAD AND USER THROUGHPUT

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ABSTRACT

A recurring topic in LTE radio planning pertains to the maximum acceptable LTE radio interface load, up to which a targeted user data rate can be maintained. We explore this topic by using Queuing Theory elements to express the downlink user throughput as a function of the LTE Physical Resource Block (PRB) utilization. The resulting formulas are expressed in terms of standardized 3GPP KPIs and can be readily evaluated from network performance counters. Examples from live networks are given to illustrate the results, and the suitability of a linear decrease model is quantified upon data from a commercial LTE network.

KEYWORDS

LTE, Traffic Model, Processor Sharing, Network Measurements

For More Details : **https://aircconline.com/ijcnc/V9N6/9617cnc03.pdf**

Volume Link : **http://airccse.org/journal/ijc2017.html**

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AN IDE FOR ANDROID MOBILE PHONES WITH EXTENDED FUNCTIONALITIES USING BEST DEVELOPING METHODOLOGIES

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ABSTRACT

Google's Android platform is a widely anticipated open source operating system for mobile phones. The mobile phone landscape changed with the introduction of smart phones running Android, a platform marketed by Google. Android phones are the first credible threat to the iPhone market. Google not only target the consumers of iPhone, it also aimed to win the hearts and minds of mobile application developers. As a Result, application developers are developing new software's everyday for Android Smart Phones and are competing with the previous in Market. But so far there is no Specific IDE developed to create mobile application easily by just Drag and Drop method to make even the non-programmers to develop application for the smart phones.
This paper presents an IDE with Extended Functionalities for Developing Mobile Applications for Android Mobile Phones using the Best developing Methodologies. The New IDE comes with the Extended Functionalities like Executing the created Application, Previewing the Application Created, Roll Back and Cancel Functions with the newly added Icons like Execute, Preview, Roll Back and Cancel Respectively. Another important feature of this paper is that the IDE is developed using the Best Developing Methodologies by presenting the possible methods for developing the IDE using JAVA SWING GUI Builder in Android ADT plug-in. The developed IDE is tested using the Android Runtime Emulator in Eclipse Framework.

KEYWORDS

IDE-Integrated Development Environment, GUI-Graphical User Interface, ADT-Android Development Tool.

For More Details : **http://airccse.org/journal/cnc/5413cnc11.pdf**

Volume Link : **http://airccse.org/journal/ijc2013.html**

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WiFi Transmit Power and its Effect on Co-Channel Interference

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ABSTRACT

The mass adoption of WiFi (IEEE 802.11) technology has increased numbers of devices simultaneously attempting to use high-bandwidth applications such as video streaming in a finite portion of the frequency spectrum. These increasing numbers can be seen in the deployment of highly-dense wireless environments in which performance can be affected due to the intensification of challenges such as co-channel interference (CCI). There are mechanisms in place to try to avoid sources of interference from non-WiFi devices. Still, CCI caused by legitimate WiFi traffic can be equally or even more disruptive, and also though some tools and protocols try to address CCI, these are no longer sufficient for this type of environment. Therefore, this paper investigates the effect of transmit power and direction have on CCI in a high-density environment consisting of multiple access points (APs) and multiple clients. We suggest improvements on publicly- existing documented power control algorithms and techniques by proposing a cooperative approach consisting of the incorporation of feedback from the receiver to the transmitter to allow it to reduce power level where possible, which will minimize the range of CCI for near clients without compromising coverage for the most distant ones.

KEYWORDS

Wi-Fi, co-channel interference, transmit power.

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COMPARATIVE AND QOS PERFORMANCE ANALYSIS OF TERRESTRIAL-AERIAL PLATFORMS-SATELLITES SYSTEMS FOR TEMPORARY EVENTS

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ABSTRACT

Wireless communications, nowadays, becomes a vital element of people's daily life. Providing global connectivity in future communication systems via the heterogeneous network opens up many research topics to investigate potentialities, enabling technologies, and challenges from the perspective of the integrated wireless systems. This paper aims to drive a comprehensive and comparative study on terrestrial-aerial platforms- satellite wireless communications systems, includes their characteristics and unravelling challenges. The comparison focuses on issues that reportedly can evaluate any wireless systems for temporary events. These issues are altitude and coverage, Radio Frequency (RF) propagation, interference, handover, power supply constraints, deployment and maintenance challenges, reliability on special events or disaster relief, cost-effectiveness and environmental impact. Last, Quality of service (QoS) performance is analysed for the four wireless communication systems from the temporary events perspective using the OPNET Modeller simulation tool. Results infer that space-based wireless systems outperform terrestrial ones.

KEYWORDS

Terrestial; Aerial Platforms; Satellites; QoS Performance; Temporary Events

For More Details : **https://aircconline.com/ijcnc/V11N6/11619cnc07.pdf**

Volume Link : **http://airccse.org/journal/ijc2019.html**

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PERFORMANCE OF TCP CONGESTION CONTROL IN UAV NETWORKS OF VARIOUS RADIO PROPAGATION MODELS

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ABSTRACT

Unmanned aerial vehicles (UAVs) have recently become popular for both recreational and commercial use and UAV networks have thus started to attract the attention of researchers in area of the computer communication and networking. One important topic in UAV networks is congestion control because congestion causes packet losses and delays which result in the waste of all types of network resources such as bandwidth and power. Although there are studies on the performance of TCP congestion control in wireless networks, they focus on terrestrial networks of two dimensions in general. In this paper we study the performance of TCP congestion control in three dimensional UAV networks. In particular, we investigate how TCP congestion control performs in such type of network using various radio propagation models. Our data on the average flow throughput, packet delay, and packet loss rate in UAV networks show that TCP congestion control improves the network performance of UAV networks in general, but it faces challenges when the link losses become severe. Our study thus shows that investigation on new congestion control schemes is stilled needed for the emerging UAV networks.

KEYWORDS

Congestion control, TCP, unmanned aerial vehicles (UAV), protocols, radio propagation

For More Details: **https://aircconline.com/ijcnc/V8N2/8216cnc01.pdf**

Volume Link : **http://airccse.org/journal/ijc2016.html**

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TOWARDS FOG-ASSISTED VIRTUAL REALITY MMOG WITH ULTRA-LOW LATENCY⋆

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ABSTRACT

In this paper, we propose a method to realize a virtual reality MMOG (Massively Multiplayer Online Video Game) with ultra-low latency. The basic idea of the proposed method is to introduce a layer consisting of several fog nodes between clients and cloud server to offload a part of the rendering task which is conducted by the cloud server in conventional cloud games. We examine three techniques to reduce the latency in such a fog-assisted cloud game: 1) To maintain the consistency of the virtual game space, collision detection of virtual objects is conducted by the cloud server in a centralized manner; 2) To reflect subtle changes of the line of sight to the 3D game view, each client is assigned to a fog node and the head motion of the player acquired through HMD (Head-Mounted Display) is directly sent to the corresponding fog node; and 3) To offload a part of the rendering task, we separate the rendering of the background view from that of the foreground view, and migrate the former to other nodes including the cloud server. The performance of the proposed method is evaluated by experiments with an AWS-based prototype system. It is confirmed that the proposed techniques achieve the latency of 32.3 ms, which is 66 % faster than the conventional systems.

KEYWORDS

Cloud game, fog computing, positional tracking, rendering of 3D game view.

For More Details : **https://aircconline.com/ijcnc/V12N6/12620cnc03.pdf**

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