Commentary

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Computing Performance of Parallel Applications in Embedded Systems

Ning Zhang*

Department of MM Engineering College, Maharishi Markandeshwar University, Mullana, Ambala, India

***Corresponding author:** Ning Zhang, Department of MM Engineering College, Maharishi Markandeshwar University, Mullana, India Email: ning.159@gmail.com

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Description

The Internet of Vehicles is a rapidly developing area of research and development in the VANETs that offers a method of intelligent communication between vehicles and the cloud via the internet of things. IOV fully supports two-way communication between network equipment and Internet-enabled automobiles, providing faster and more reliable solutions. It is possible to reduce latency and speed up service delivery by moving computation to the network's periphery. High latency, high infrastructure costs, and deteriorating performance are issues with centralized and decentralized computing designs. The Internet of Vehicles with Cloud Computing developed as a result of the impact of cloud computing on other areas, including the transportation industry. Although CC is a centralized computing paradigm, it is unable to optimize latency, throughput, and bandwidth for many QOS parameters. This study aims to investigate the acceptability of IOV's security and data distribution in both centralized and decentralized computing. In addition, the subsequent section discusses future options for resolving these issues as well as the associated efforts and their outcomes. The smart vehicle with computation capability is a node in the internet of vehicles and collects and transmits information as part of the network edge for the smart city. Under 5G conditions, it is essential to maintain IOV communication in rural or disaster areas, where drones play a crucial role. Additionally, completing the incentive computation for high-speed vehicles can be accomplished using edge computing.

Scheduling of Tasks on Embedded Platforms with Multiple ECUs

An authentication scheme for a drone-aided edge computing-enabled Internet of Vehicles is developed in this paper. In the data transmission, the vehicles can maintain their anonymity. As the mobile edge computing server, the roadside unit handles vehicle data. The relevant message will be sent to the trusted authority in the event that the identity of any vehicle is required. The formal proof demonstrates that the attacker could not fake the messages between the participants. Our plan is the only one of recent drone-assisted IOV schemes that maintains all security features. However, it is difficult to design the scheduling because tasks arrive at random. This paper examines the scheduling of tasks on embedded platforms with multiple ECUs that assume to accept a variety of tasks arriving at random. First, we propose a dynamic DAG scheduling algorithm based on integer linear programming that can effectively reduce energy costs while meeting all task deadlines. For the actual application of ILPS, an offline-online-training strategy is also proposed to expedite the creation of scheduling policies. Second, we propose a DVFS-available energy saving algorithm that meets deadline constraints while simultaneously reducing energy consumption by iteratively determining the appropriate frequency for each task. Our algorithm outperforms other methods in terms of scheduling length and energy consumption, as evidenced by extensive experiments. In applications like e-commerce and data exchange, the digital signature is frequently used to verify a user's identity and guarantee data integrity. In a multi-user scenario, however, authorized users may misuse the secret key for financial gain. Therefore, it is crucial to locate these malicious users and remove them from the system. Additionally, the majority of current schemes have only a single authority to generate the secret key, which may result in its misuse.

Task Structure-Aware Algorithm

A traceable and revocable multi-authority attribute-based cloud keyword search is proposed in this paper to address these issues. To prevent any one authority from gaining unauthorized access to cloud data, the plan involves two authorities creating the user secret key. Additionally, the scheme removes malicious users from the system by tracking them down. In addition, we demonstrate that the scheme is safe from targeted keyword attacks, targeted plaintext attacks, and traceability attacks. Additionally, check the security against unsavory authorities. The proposed scheme outperforms the most recent ones in terms of computation cost, as demonstrated by the performance analysis. Because they can significantly boost the computing performance of embedded parallel applications, heterogeneously distributed embedded systems are widely used. The task scheduling problem under energy constraints has received a lot of attention from researchers in recent years in order to strike a balance between computing performance and energy consumption. Modern algorithms, on the other hand, do not take into account how the application's task structure affects

scheduling performance. For the parallel application scheduling problem in heterogeneous distributed embedded systems, a structure-aware task scheduling strategy is proposed in this study. More specifically, the algorithm is thought to be influenced by the application's structure. In the meantime, an improved weighted energy pre-allocation algorithm is proposed in this study to avoid pessimistic energy allocation and shorten the application's schedule. The results of the experiments show that the task structure-aware algorithm can shorten the scheduling time for parallel applications with limited energy consumption.