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VECHILE AS VECHICULAR NETWORKS FOR BIG DATA TRANSFER BETWEEN DATA CENTERS IN ICF

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ABSTRACT:

The advancement of various research sectors such as Internet of Things (IoT), Machine Learning, Data Mining, Big Data, and Communication Technology has shed some light in transforming an urban city integrating the aforementioned techniques to a commonly known term - Smart City. With the emergence of smart city, plethora of data sources has been made available for wide variety of applications. The common technique for handling multiple data sources is data fusion, where it improves data output quality or extracts knowledge from the raw data. This data is thus required to be aggregated and processed for effective decision making. However, the paradigm shift to smart cities has resulted in production of enormous data that requires handling, transfer (from the source to a data center for example) and storage. Thus, the main focus of smart cities becomes the efficient management of available resources and the data produced by these resources in order to improve the economy and the sustainability of societies. However, the enormous number of such devices would result in unprecedented growth in data, creating capacity issues related to the acquisition, transfer from one location to another, storage, and finally the analysis. The traditional networks are not sufficient to support the transfer of this huge amount of data, proving to be costly both in terms of delay and energy consumption.

KEY WORDS: *IOT(Internet of things);QOS(Quality of Service);DTN(Delay Tolerant Network);COT(Cloud of Things)*

1. INTRODUCTION

The role of smart cities and its services is increasing due to easy access to technology. However, to handle the concerns of end users, more pragmatism is required in research to keep it relevant for all the stakeholders. Therefore, there is a need of structured research with a special focus on sustainable, global and social-aware policies for research in smart cities. Moreover, the emerging technologies such as Internet of Thing, context-aware computing, cognitive computing, 5G, and advanced distributed data-ware housing require greater attention to satisfy the end users and attract other stakeholders. Internet of things is becoming ubiquitous leading towards the proliferation of smart cities and smart vehicles. In smart cities, the data generated from IoT devices can be further utilized to improve the urban environment and smart city services. This data is thus required to be aggregated and processed for effective decision making. However, the paradigm shift to smart cities has resulted in production of enormous data that requires handling, transfer and storage. Thus, the main focus of smart cities becomes the efficient management of available resources and the data produced by these resources in order to improve the economy and the sustainability of societies. With the concept of smart cities, where all the resources are connected, monitored and utilized, it becomes imperative to efficiently handle the movement of this huge amount of data for its effective management.

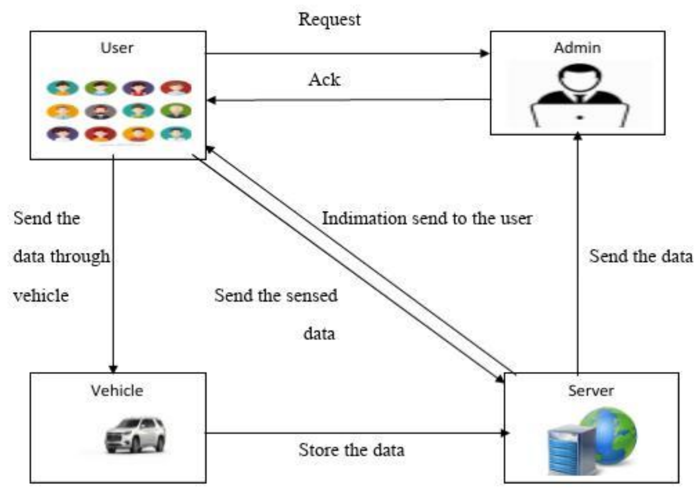
2. EXISTING SYSTEM

The movement of this massive amount of data through the traditional networks is not sustainable as it over burden these networks consuming an enormous amount of energy at the Intermediate nodes and incurring significant delays as well as monetary cost. In order to cater to the rapid growth of data our essential and contextual investigations performed in the mathematical evaluation of these case studies give solid proof that substantial energy and cost savings can be accomplished while as yet ensuring the information delivery. Moreover, our minimum energy cost flow model shows that if we have the knowledge of vehicle volume on the road and transportation routes, we can identify the routes having least cost for data transportation.

3. PROPOSED METHOD

The proposed system has been designed to leverage the capabilities of smart city and smart vehicles. There are four major components in this architecture; centralized controller, source & destination data centers, data-spots and the smart vehicles. The smart vehicles are connected through a cellular network and are assumed to have variable data carrying capacities. The request for data transfer to a specific destination data center is initiated by the source data center. The controller performs route planning and schedules the transfer. Smart vehicles are used to transfer the data from the source data center and they carry it to either thernal destination or offoad the data to any of the data-spots along the route .The data is eventually received at the destination data center. The controller is the main module of the proposed frame-work. It is responsible for efficient route planning so that data can be transferred to the destination with minimum delay and through best available routes. The are the intermediate stations placed at different locations to facilitate the data transfer process. In our proposed framework, the data-spots are large in number, usually available on multiple routes between the data centers.

PROPOSED BLOCK DAIGRAM



The main aim of this project is to devise a simple low cost based Big data transfer monitoring system using wireless technology in edge and fog-computing method.

CONCEPT

Figure 3.2: Concept Diagram

4.1 SOFTWARE REQUIREMENTS

The software requirements document is the specification of the system. It should include both a definition and a specification of requirements. It is a set of what the system should do rather than how it should do it. The software requirements provide a basis for creating the software requirements specification. It is useful in estimating cost, planning team activities, performing tasks and tracking the teams and tracking the team's progress throughout the development activity.

- EMBEDDED C
- PCB DESIGNING

5. RESULT AND DISCUSSIONS

The proposed a framework that utilizes vehicular networks for big data transfer between data centers. The framework supports urban/social computing vehicles and helps in reducing the movement of data. Simulation results show that this approach is efficient in terms of energy savings as well as the utilization of resources. The framework also facilitates the researchers to incorporate different algorithms to optimize the data transfer mechanism.

6. FUTURE ENHANCEMENTS

In future, we aim to extend our framework by incorporating Artificial Intelligence and machine learning techniques to select the suitable vehicle for data transfer. It can improve the task delivery ratio further. Moreover, hybrid techniques, where part of data is transfer through vehicle and remaining through Internet can also be incorporated. The proposed framework has set the platform for the researchers to incorporate their own vehicle routing algorithms to improve energy and reduce the delay for data transportation in smart cities.

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