ISSN NO: 9726-001X
Volume 03 Issue2 April 2015

JOURNAL OF CURRENT SCIENCE

DTNs may use NCLs to improve data accessibility and decrease caching overhead.

Jagadeswara rao
Energy Technology, Shivaji University, Maharashtra, India

Abstract

Disruption tolerant networks (DTNs) have a minimal number of nodes, nodes that move around randomly, and limited access to information about the whole network. Providing effective data access for mobile users has received very little attention in recent DTNs research. In this research, we offer an innovative method to facilitate cooperative caching in DTNs, which allows for the coordination and sharing of cached data across several nodes and thereby decreases data access latency. Our core concept is to strategically store data at a group of nodes in the network called network central locations (NCLs), from which all other nodes may get the cached information with little effort. To maximize the efficiency of the tradeoff between data accessibility and caching overhead, we offer a strategy that coordinates numerous caching nodes and assures proper NCL selection based on a probabilistic selection criteria. Extensive trace-driven simulations demonstrate the approach's superiority over preexisting techniques in terms of data access performance.

Cooperative caching, disruption-tolerant networks, data access, network nodes, and cache replacement are some examples of keywords.

Introduction

Disturbance-tolerant networks (DTNs) are made up of mobile devices that make sporadic contact with one another. It is challenging to maintain end-to-end communication connections in DTNs because of the low node density and uncertain no demobility, and as a result, "carry and- forward" solutions are required for data transfer. Since it's preferable for smartphone users to be able to discover engaging digital material from nearby peers, the important issue is how to decide the best relay selection approach.

1. Existing system

A common technique used to improve data access performance is caching, i.e., to cache data at appropriate network locations based on query history, so that queries in the futurecan be responded with less delay. Although cooperative caching has been studied for both web-based applications and wireless adhoc networks to allow sharing and coordination among multiple caching nodes.

1.1 Proposed system

Here, we suggest an innovative method for facilitating shared caching in DTNs. Our central concept is to systematically cache information at a group of NCLs from which it may be retrieved with little

ISSN NO: 9726-001X
Volume 03 Issue2 April 2015

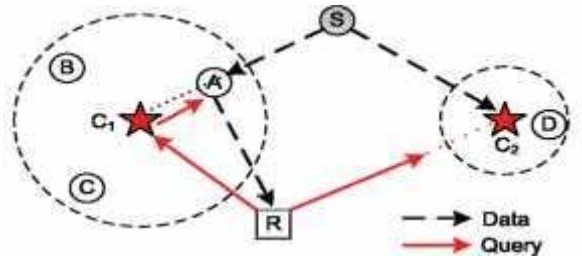
effort by other nodes. Our technique coordinates cache nodes to maximize the balance between data availability and caching overhead, and we guarantee proper NCL selection using a probabilistic measure..

2. Equations

$$p_Y(x) = \sum_{k=1}^{r} C_k^{(r)} p_{X_k}(x),$$

3. Figures and Tables4.1Figures

This figure shows the Caching strategies indifferent network environments.



The big picture of intentional caching.

4.2 Tables

TABLE 1
Trace Summary

Trace	Infocom05	Infocom06	MIT Reality	UCSD
Network type	Bluetooth	Bluetooth	Bluetooth	WiFi
No. devices	41	78	97	275
No. contacts	22,459	182,951	114,046	123,225
Duration (days)	3	4	246	77
Granularity (secs)	120	120	300	20
Avg. inter-contact time (hours)	3.43	1.83	64.13	47.17

This table shows the summary of the trace.

4. conclusion

In this work, we provide a new method for facilitating shared caching in DTNs. Our central concept is to systematically cache information at a group of NCLs from which it may be retrieved with little effort by other nodes. Our technique coordinates cache nodes to maximize the tradeoff between data accessibility and caching overhead, and we guarantee proper NCL selection using a probabilistic measure. Extensive simulations demonstrate that, in comparison to other techniques, ours significantly increases the proportion of successfully resolved queries and decreases data access latency.

References

A. Iyengar, M. Srivatsa, M. Srivatsa, and W. Gao, "Supporting

Caching with Cooperation for Delay Tolerant Systems

Networks", Proceedings of the IEEE,

International Conference on Distributed Computing Systems 2011

An excerpt from "Efficient Routing in Intermittently Connected Mobile Networks: The Single-Copy Case" by A. T. Spyropoulos, K. Psounis, and C. Raghavendra appears in the IEEE/ACM Trans.

Networking, February 2001, volume 16, issue 1, pages 63-76.

[4] "Benefit-Based Data Caching in Ad Hoc Networks," B. Tang, H. Gupta, and S.R. Das, IEEE Trans. Mobile Computing, vol. 7, no. 3, pp. 289-304, March 2008.

In 2010, the IEEE journal Parallel and Distributed Systems published an article titled "Cooperative Caching in Wireless P2P Networks: Design, Implementation, and Evaluation" by J. Zhao, P. Zhang, G. Cao, and C. Das.

.