

ED STIC - Proposition de Sujets de Thèse pour la campagne d'Allocation de thèses 2011

Titre du sujet :

Mention de thèse :

HDR Directeur de thèse inscrit à l'ED STIC :

Co-encadrant de thèse éventuel :

Nom :

Prénom :

Email :

Téléphone :

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Description du sujet :

Context:

The Planète project-team conducts research in the domain of networking, with an emphasis on designing, implementing, and evaluating Internet protocols and applications. The main objective of the project-team is to propose and study new architectures, services and protocols to support efficient and secure communication through the Internet. One of its research axis focuses on the design of communication mechanisms for challenging networks (or delay tolerant networks) [1-4].

Summary:

Today, we are faced with an Internet that is good at delivering packets, but presents a level of inflexibility at the network layer and a lack of built-in facilities to support any non-basic functionality. Initially, the Internet was designed for fixed terminals, and it shows inefficient behavior for mobile and nomadic terminals. Furthermore, the fundamental Internet protocols were originally designed for host-to-host communication, while today the bulk of the IP traffic

corresponds to user-content access. Since a few years, a worldwide effort is underway in the network community to re-invent the network architecture for the future Internet, and several solutions propose changing the architecture from a host-centric to a content-centric design, e.g. PSIRP[5] and CCN[6]. The thesis will focus on the following topics:

- Content dissemination in large scale heterogeneous networks
- Support of mobility and challenged networks
- Resource management and congestion control for content-centric networks

The work will be done in the context of the Community [7] associated team between INRIA and UCSC.

References:

[1] A. Krifa, C. Barakat, T. Spyropoulos, "Optimal Buffer Management Policies for Delay Tolerant Networks", in proceedings of the 5th IEEE Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON 2008), San Francisco, June 2008.

[2] T. Spyropoulos, T. Turletti, K. Obraczka, "Routing in Delay Tolerant Networks Comprising Heterogeneous Node Populations", in IEEE Transaction on Mobile Computing (TMC), Vol. 8, No. 8, August 2009.

[3] R.N.B. Rais, M. Mendonca, T. Turletti, K. Obraczka, "Towards Truly Heterogeneous Internets: Bridging Infrastructure-based and Infrastructure-less Networks", in Proceedings of the 3rd IEEE/ACM International Conference on Communication Systems and Networks (COMSNETS), January 2011.

[4] R.N.B. Rais, M. Abdelmoula, T. Turletti, K. Obraczka, "Naming for Heterogeneous Networks Prone to Episodic Connectivity", in Proceedings of the IEEE WCNC Conference, Mexico, March 2011.

[5] Fotiou, N., Polyzos, G.C., Trossen D., "Illustrating a Publish-Subscribe Internet Architecture", Telecommunication Systems, Springer, Special Issue on 'Future Internet Services and Architectures: Trends and Visions'

[6] V. Jacobson, D. K. Smetters, J. D. Thornton, M. F. Plass, N. H. Briggs, R. L. Braynard, "Networking Named Content", CoNEXT 2009, Rome, December, 2009.

[7] COMMUNITY Associated Team, <http://inrg.cse.ucsc.edu/community/>

English version: