Motivation

Technological advances in both wireless networking and portable device capabilities, have met social popularity and led to the use of an increasing number of devices and services to accomplish our daily tasks. It will not be long before we will see a large number of interconnected devices providing services and resources. Subsequently, an efficient way to access the various services and resources will be required. The access will need to take care of special challenges posed by MANET: (1) the lack of infrastructure; (2) the limited resources on the terminals; and (3) the terminal mobility. And for broader application of such technologies in civil applications, the service access will also need to take into account (4) the autonomy and resulting selfishness of the interconnected hosts of services and resources.

Research

Our research starts with specification of services, which includes both the functional and non-functional properties, to describe service properties. Due to the limited resources (e.g., computing power) on thin devices, our QoS specification incorporates the resource consumption of a service, which is attributed to the service cost.

The next step of service access is how to discover remote services and how to select services if there are multiple qualified instances available. We rely on the signal strength to discover reliable services and apply Vickrey auction to select services in order to incentivize service provision.

After service discovery and selection, services are invoked, with QoS monitoring carried out in the mean time. The latter provides an input regarding how the actual provided QoS is compared to the advertised values, for modeling the trustworthiness of a terminal. And to facilitate the access of services on stranger terminals, we introduce a reputation mechanism to enforce reputation information sharing and honest recommendation elicitation.

Contributors

- Jinshan Liu
- Valérie Issarny

Follow-up

- Service-oriented middleware for ubiquitous networks

Publications

Titre Supporting QoS-aware Service Discovery in Ubiquitous Computing Environments.

AuteursLiu Jinshan DétailThèse. Université de Versailles-Saint Quentin en Yvelines (11/07/2006) Accès au texte intégral

Titre [An incentive compatible reputation mechanism for ubiquitous computing environments](#)
AuteursLiu Jinshan; Issarny Valérie DétailIn
International Conference on Privacy, Security and Trust : PST 2006
(2006) 36 Accès au texte intégral

Titre [QoS-aware dynamic service composition in ambient intelligence environments](#)
AuteursBen Mokhtar Sonia; Liu Jinshan; Georgantas Nikolaos; Issarny Valérie DétailIn
20th IEEE/ACM International Conference on Automated Software Engineering : ASE 2005
(2005) 317-320 Accès au texte intégral

Titre [Group management for mobile Ad Hoc networks: design, implementation and experiment](#)
AuteursLiu Jinshan; Sacchetti Daniele; Sailhan Françoise; Issarny Valérie DétailIn *Mobile Data Management* (2005) 192-199 Accès au texte intégral

Titre [Service Allocation in Selfish Mobile Ad-hoc Networks Using Vickrey Auction](#)
AuteursLiu Jinshan; Issarny Valérie DétailIn
9th International Conference on Extending Database Technology : EDBT 2004
(2004) 385-394 Accès au texte intégral

Titre [QoS-Aware Service Location in Mobile Ad-Hoc Networks](#)
AuteursLiu Jinshan; Issarny Valérie DétailIn *5th IEEE International Conference on Mobile Data Management : MDM 2004*
(2004) 224-235 Accès au texte intégral

Titre [Enhanced Reputation Mechanism for Mobile Ad Hoc Networks](#)
AuteursLiu Jinshan; Issarny Valérie DétailIn
Second International Conference on Trust Management : iTrust 2004
(2004) 48-62 Accès au texte intégral