2018-00360 - Measurements to check network neutrality

Niveau de diplôme exigé : Bac + 5 ou équivalent
Fonction : Doctorant

A propos du centre ou de la direction fonctionnelle

Inria, the French National Institute for computer science and applied mathematics, promotes "scientific excellence for technology transfer and society". Graduates from the world's top universities, Inria's 2,700 employees rise to the challenges of digital sciences. With its open, agile model, Inria is able to explore original approaches with its partners in industry and academia and provide an efficient response to the multidisciplinary and application challenges of the digital transformation. Inria is the source of many innovations that add value and create jobs.

Contexte et atouts du poste

Within the framework of a partnership

- Within the Integrated Project Lab BetterNet (if funding granted)
- collaboration between 2 Inria teams: Dionysos and Madynes
- value-creation and technology transfer contracts with ****

Mission confiée

The Internet is historically neutral, in the sense that all data packets are supposed to be treated the same at each node of the network, without any distinction of their type, origin or destination. This equality principle has been questioned by network service providers expecting content providers to participate to infrastructure investments; if not paying they could be blocked or slowed down. It initiated the so-called network neutrality debate, still very vivid worldwide. Neutrality has been imposed in Europe, but has recently been repealed in the US.

The goal of this PhD thesis is to develop measurement tools allowing to detect if a non-neutral behavior can be highlighted, this for the various actors of the Internet network: network access providers first, the main targets of the debate, but not only. Indeed, we have emphasized in previous works that a packet-focused neutrality can be circumvented by applying a service differentiation at another level: it could for example be the case by choosing the data cached at the edge of the network to provide a better quality of service. An implicit goal will then be to define a neutral (or fair) behavior for each actor, to define the associated metrics, and to set up corresponding measurement techniques.

This thesis is part of the Inria Integrated Project Lab BetterNet and is related to the french mission TransAlgo on the transparency of algorithms.

Bibliography:


Informations générales

- Thème/Domaine : Réseaux et télécommunications
- Système & réseaux (BAP E)
- Ville : Rennes
- Centre Inria : CRI Rennes - Bretagne Atlantique
- Date de prise de fonction souhaitée : 01-09-2018
- Durée de contrat : 3 ans
- Date limite pour postuler : 30-04-2018

Contacts

- Equipe Inria : DIONYSOS
- Recruteur : Tuffin Bruno / bruno.tuffin@inria.fr

Conditions pour postuler

Please submit online : your resume, cover letter and letters of recommendation.

For further information, please end an e-mail to bruno.tuffin@inria.fr

Sécurité défense :

Ce poste est susceptible d'être affecté dans une zone à régime restrictif (ZRR), telle que définie dans le décret n°2011-1425 relatif à la protection du potentiel scientifique et technique de la nation (PPST). L'autorisation d'accès à une zone est délivrée par le chef d'établissement, après avis ministériel favorable, tel que défini dans l'arrêté du 03 juillet 2012, relatif à la PPST. Un avis ministériel défavorable pour un poste affecté dans une ZRR aurait pour conséquence l'annulation du recrutement.

Politique de recrutement :

Dans le cadre de sa politique diversité, tous les postes Inria sont accessibles aux personnes en situation de handicap.

Attention: Les candidatures doivent être déposées en ligne sur le site Inria. Le traitement des candidatures adressées par d'autres canaux n'est pas garanti.
Principales activités
Main activities (5 maximum):
Additional activities (3 maximum):

Examples of activities:
- Analyse the requirements of [partners, clients, users]
- Propose **** solutions for ****
- Develop programs/applications/interfaces of **** ****
- Design experimental platforms ****
- Write documentation
- Write reports
- Write ****
- Test, change up until validation
- Distribute the *** * to **** via ****
- Provide user training for the service's main clients
- Lead a user community
- Present the works' progress to partners, ***** to an audience of financiers ****
- Other ****

Compétences
Knowledge on networking.

Avantages sociaux
- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Flexible working hours
- Sports facilities

Rémunération
From 1982 euros before taxes