



DOCTORATS  
INDUSTRIALS

EL PLA DE  
DOCTORATS  
INDUSTRIALS

## PROJECTE DE DOCTORAT INDUSTRIAL EXPEDIENT 2015 DI 023

### DADES DE L'EMPRESA I DE L'ENTORN ACADÈMIC

#### Títol del projecte

Definition of new WAN paradigms enabled by MPTCP Technology.

#### Empresa

STARFLOW SL

#### Responsable de l'empresa

Oscar Chabrera Villarreal

#### Universitat o Centre de Recerca

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#### Director/a de tesi

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#### Treballador/a de l'empresa i doctorand/a

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### BREU DESCRIPCIÓ DEL PROJECTE DE RECERCA

Wide Area Networks evolve with a long life-cycle and are usually followed by big changes in the switching and network layer technologies involved. The idea behind Starflow Networks is to drive the new generation of WAN technologies while leveraging the current infrastructure. The goal of the company is to provide an incremental migration strategy from the currently existing corporate networks based on the very expensive MPLS by affordable Internet Links but keeping the high levels of resiliency.

The project candidate will have a twofold role within the company, on the one hand he will be involved in the active development and design of the company product line, while at the same time he will investigate the impact on reliability and performance of such a change, centering the study on the use of Multipath-TCP to exploit multiple public internet links in site-to-site topologies, providing novel path managers and original traffic schedulers able to cope with the heterogeneity of the connections in the Internet, always maintaining the desired level of Quality of Service (QoS).

In further detail, the project will also cover data plane processing optimization and traffic analysis for the design of adaptive strategies and algorithms, including but not limited to Machine Learning and application profiling.



Generalitat de Catalunya  
Departament d'Empresa i Coneixement  
**Secretaria d'Universitats i Recerca**



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The PhD plan is split in different phases:

- First, concerning the company product line, the candidate work will involve the development of the technological grounds where the rest of the algorithms will be built upon. In this regard high development and operating system's administration.
- Second, at the same time of this "set the grounds" work, the candidate will also characterize the performance of the algorithms and the designed protocols both from an experimental and analytical perspective. More specifically, this part will involve the study of Multipath-TCP and its impact on network performance and reliability.
- Third and last aspect, the project will also focus on the investigation of possible algorithms to better exploit the multipath nature itself of the protocol to guarantee bounded performance over the public Internet; these involves machine learning algorithms and in-line traffic analysis.