

Invited paper

**Evolving optical grid network technologies to support
future Internet services**

Dimitra Simeonidou, Reza Nejabati, Georgios Zervas
Essex University, UK

Abstract

This paper will discuss and justify the need to coordinate the deployment of advanced optical and Grid network technologies and software tools in order to support the complex network services requirements for future Internet applications.

Extended Abstract

The success of the Internet has led to its current central position as a fundamental enabler of the world's economy. Several developments have facilitated this success and one of the fundamental drivers has been the wide availability of broadband connections based on optical transmission technologies. However, today's Internet applications are becoming more and more demanding, requiring complex solutions to application-driven, high-performance deterministic networking and scalable integration of services and infrastructures (network and IT components). In order to satisfy a range of new applications and support large data flows between users, data centres and instrumentation clusters dramatic changes are required in the way future networks are deployed.

This paper will discuss and justify the need to coordinate the deployment of advanced optical technologies and Grid network software tools in order to support the complex network services requirements for such applications. The focus will be on delivering network solutions to support scaling in terms of link and network capacity, IT facilities, number of users and styles of networks. Furthermore, the proposed architecture will enable both the applications and providers to create, shape, use and manage the network and will allow running collaborative and/or parallel network services at a very large scale.

Dimitra Simeonidou



CV

Dimitra Simeonidou is the Head of the Photonic Networks Group at the University of Essex, UK. She joined Essex in 1998 (previously with Alcatel Submarine Networks). Currently she is the chair of the High Performance Networking research group (ghpn) in the Open Grid Forum and an active member of the International Grid and Optical Networking research community. Main areas of research are: photonic switching, ultra high-speed network technologies and architectures, control and service plane technologies for photonic networks and architectural considerations for photonic Grid networks. She is the author and co-author of over 200 papers, 11 patents and 2 standardisation documents.