Andrea Di Donato

Personal details

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Title:	Mr		

Profile:

I am a qualified Masters Telecommunications engineering professional with a solid background in emerging IP technologies and networking, router/switches internal architecture and configuration, optical networking and maths. An ideal position would be one where I expand on the practical experience I have gained from working on the projects mentioned below, at the same time making use of the theory knowledge I currently use in my R and D environment.

Skills:

- Programming: C, Perl , Java, Pascal, Fortran, Assembler; OS: UNIX/Linux, Windows
- Broad knowledge of TCP/IP, LAN/WAN architectures and protocols (e.g. GE, SDH..),
- Cisco IOS specifically for QoS (WFQ,WRR,MDRR,WRED) and MPLS-TE
- Cisco internal architecture of the 7200, 7600 and 12000 router platforms
- Cisco IOS/PIX Firewalls, VPNs
- Experience of VLANs, MPLS L2/L3 VPNs and Routing: ISIS,OSPF
- Cisco CCNA/CCDA: working knowledge
- Juniper JUNOS on M10 router platform
- Procket IOS on PRO/8000 series router platform; Chiaro Enstara Router platform
- Development and usage of traffic generator, capture, analysis and results visualization tools
- Full clean driving license
- Languages: Italian (mother tongue), English (excellent oral / written working language)
- Extremely solid mathematical and Telecommunication Engineering background

Work experience:

Current position: **Network Research Engineer**, Networked Systems Research Group, High Energy Physics, University College, London (http://www.netsys.ucl.ac.uk/)

Projects:

Overview
The projects below require/required close international relations with major transnational network providers. Through attending meetings, conferences and workshops, where I have given regular presentations, I have been able to contribute in the taking of key decisions. The projects have led to several publications, both in Europe and the USA.

1) MB-NG (**M**anaged **B**andwidth – **N**ext **G**eneration**):** a UK e-Science project, concerning the deployment of end-to-end IP QoS in a WAN across the UK. (http://www.mb-ng.net)

- As a network research engineer I am involved in the definition, design, configuration and performance evaluation of both access and core Differentiated Services IP QoS and MPLS enabled networks of 1 and 2.5 Gbps Capacity. Daily hands-on work on Cisco 7200, 7600 and 12000 routers, switches and firewalls.

2) EGEE – (**E**nabling **G**rid for the **E**-Science in **E**urope): a EU IST framework project (http://egee-intranet.web.cern.ch/egee-intranet/gateway.html)

- As a network engineer I am involved in the architecture and performance test of several Control/Management plane solutions for **Network Bandwidth advance reservation**. The work also focuses on optical control plane solutions for light-paths provisioning, this involving hands-on **CISCO 15454** and **CIENA** metro/core director optical equipment.

3) DATATAG (**T**rans**A**tlantic **G**rid) (project now successfully completed): a EU IST R&D Framework Programme project aiming at the deployment of a transatlantic link of **10 Gbps** between Starlight (Chicago) and CERN (Geneva) for highly QoS-demanding GRID traffic.
http://datatag.web.cern.ch/datatag

- As a network engineer I led the evaluation of QoS performances amongst the router manufacturers **Cisco, Juniper, Alcatel, Procket and Chiaro** at **1, 2.5** and **10 Gbps** speed**.** The work also required the investigation and deployment of an **Active Queue Management** (AQM) router solution to support the poor performance TCP shows over the high bandwidth-delay-product transatlantic link. I was also involved in the test of **new TCP proposals** over a IP-QoS enabled network.

Relevant degree background areas **(for complete exam list, see appendix):**

Telecommunication networks - TCP/IP, ATM, L2, Optical, Satellite and Mobile networks; *Switching systems* – routers/switches internal architecture design; *Elecrical communications* - dimensioning of a communication network; *Radiocommunication systems* – Antennas, Receivers, Transmitters, Modems; *Radar systems*; *Control systems* – stability of non-linear systems*; Logic networks design* – micro controlled hardware interface design; *Neural and Neurofuzzy networks* – Predictors theory; *Signal theory* – Fourier, Laplace and Wavelet analysis; *Information theory and codes* - communication protocols design

Education and Qualifications

Qualifications:

2001 **Degree in Telecommunications Engineering***
28 modules (see appendix for complete list of exam subjects)
Each module consisted of a 3 month course ending in both a written and oral examination.

*NB: This Telecommunications Engineering degree is considered the equivalent of a Master's degree in the UK.

Dissertation: "**O**ptical **D**omain **S**ervice **I**nterconnect:
A solution to Internet Protocol over Optical Networks"

1990 "*Maturità*"
(Italian multi-subject exam taken at 18 years old)

Places attended:

1991-2001 First University of Rome, "*La Sapienza*",
(Faculty of Engineering), Rome, Italy

1985-1990 "Liceo Scientifico *Wolfgang Goethe*" (13-18 years old)

Interests:

Football and skiing, books on mathematics, physics, philosophy - or all three combined!, Ancient Greece and Rome, travel

List of Publications:

Papers/Talks

Benchmarking QoS on Router Interfaces of Gigabit Speeds and Beyond A. Di Donato, J. Orellana, F. Saka, P. Clarke,. In *Proc. 9th Open European Summer School and IFIP Workshop on Next Generation Networks (EUNICE 2003), Budapest-Balatonfüred, Hungary*, September 2003. [pdf]

Providing Quality of Service Networking for High Performance GRID Applications
Miguel Rio, Javier Orellana, Andrea di Donato, Frank Saka, Ian Bridge and Peter Clarke
In Proceedings of EPSRC All-Hands Conference 2003, September 2003, Nottingham, United Kingdom [doc]

Using QoS for High Throughput TCP Transport Over Fat Long Pipes
Andrea Di Donato, Yee-Ting Li, Frank Saka and Peter Clarke In proceedings of Second International Workshop on Protocols for Fast Long-Distance Networks February 16-17, 2004. Argonne National Laboratory, Argonne, Illinois USA [pdf]

IP-QoS benchmarking in Gigabit networks
Andea Di Donato, First international GRID NEtworking Workshop 2004 (GNEW2004). March 15-16, 2004 – CERN, Geneva, Switzerland. [GNEWlink]

On the joint use of new TCP proposals and IP-QoS on high Bandwidth-RTT product paths
Andrea Di Donato, Frank Saka, Javier Orellana and Peter Clarke, proceedings of the Trans-European-Research and Education Networking Association (TERENA) networking conference 2004. 7-10 June 2004. Rhodes, Greece. [pdf]

Other documents

"**Description, results, plots and conclusions about LBE (Less than Best Effort) tests between INFN (Italy) and UCL (London): case congestion at the edge only**" Andrea Di Donato, UCL, February 2003.[doc]

"QoS_On_ Shaping : Core-bottleneck emulation and traffic differentiation in a Cisco 12000 core routers network" Andrea Di Donato, UCL, May 2003.[doc]

"OC-3 core-bottleneck and traffic differentiation using Cisco 12000 core-routers in an end-to-end environment" Andrea Di Donato, UCL, May 2003.[doc]

Appendix (*In chronological order)*

28 degree modules

Date	Exam title
18/04/91	Mathematical analysis 1
11/07/91	Chemistry 1
31/01/92	Geometry
17/06/92	Physics 1
20/10/92	Mathematical analysis 2
01/02/93	Numerical analysis
21/04/93	Physics 2
17/07/93	Foundations of computer science
12/10/93	Electromagnetic fields
17/01/94	Signal theory
23/06/94	Circuit theory
07/11/94	Electronics 1
09/02/95	Elecrical communications
16/06/95	Applied physics
12/03/96	Computer Architecture
28/06/96	Digital signal processing
13/10/96	Telecommunication networks
20/02/97	Telecommunication systems
10/06/97	Switching systems – including algebraic switching theory
27/10/97	Control systems
30/01/98	Radar systems
17/04/98	Radiocommunication systems
23/07/98	Neural and neurofuzzy networks
19/10/99	Logic network design
16/01/00	Economics and management of technology
08/04/00	Biomedical data and signal processing
18/07/00	Electronics 2
21/02/01	Information theory and codes