



Grant agreement no. 243964

QWeCI

Quantifying Weather and Climate Impacts on Health in Developing Countries

Milestone 5.3.c – Implantation of computer systems for analysis and modelling datasets

Start date of project: 1st February 2010

Duration: 42 months

Lead contractor : UCAD

Coordinator of milestone : UCAD

Evolution of milestone

Due date : M24

Date of first draft : 27 June 2012

Start of review : 28 June 2012

Milestone accepted : 28 June 2012

| | | |
|---|---|----|
| Project co-funded by the European Commission within the Seventh Framework Programme (2007-2013) | | |
| Dissemination Level | | |
| PU | Public | PU |
| PP | Restricted to other programme participants (including the Commission Services) | |
| RE | Restricted to a group specified by the consortium (including the Commission Services) | |
| CO | Confidential, only for members of the consortium (including the Commission Services) | |

The purpose of this short document is to give a report of "implementation of computer systems for analysis and modeling of datasets" at LPAOSF in the framework of QWECI.

QWECI provides an excellent basis for the reinforcement of our Informatic integrated environments that combine resources needed to support shared science projects located at multiple institutes, laboratories and universities in Senegal.

LPAOSF's Informatics structure has evolved over the past years to provide the services and infrastructure needed to provide transparent and secure access to advanced and integrated information and technologies infrastructure: powerful computing systems, large-scale data archives, scientific instruments, and collaboration tools. It is in this sense we must understand the purchase of this server that is within the broader framework of enhancing our IT network.

1. Hardware Specifications

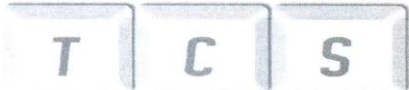
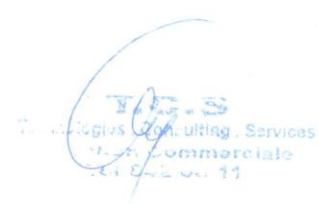
| | | | |
|---|---|-------------------------|-------------------|
|  <p>Technologies Consulting Services DELL DIRECT PARTNER</p> | | <p>LPAO SF UCAD</p> | |
| <p>18 Mbaye Gueye X Vincent BP 23378 DP Tel : (221) 33 889 88 80 / (221) 33 842 06 11 (221) 33 823 53 48 Fax : (221) 33 842 06 12</p> | | | |
| <h3>Bon de livraison</h3> | | | |
| N° du BL | Date | Suivi par : | Lieu de livraison |
| BL20027 | 23/01/12 | Mme Samba | LPAO SF UCAD |
| Livreur : | | | |
| Réception : | | | |
| Référence | Désignation | Qté | Conditionnement |
| DIVERS_KS | <p>SERVEUR DELL POWEREDGE R410 SN F7SW75J PowerEdge R410 Chassis for Up to 4x 3.5" Cabled HDDs, LED Diagnostics, Intel 5600 Series Support Processeur: Intel Xeon X5650, 6C, 2.66GHz, 12M Cache, 6.40GT/s, 95W TDP, Turbo, HT, DDR3-1333MHz Mémoire: 64GB pour 2 CPUs, DDR3, 1333MHz (8x8GB Dual Ranked LV RDIMMs) Disque dur: (2) 250GB, SATA, 3.5-in, 7.2K RPM Hard Drive Lecteur: 16X DVD+/-RW Drive SATA avec cable SATA Processeur additionnel: Intel Xeon X5650, 6C, 2.66GHz, 12M Cache, 6.40GT/s, 95W TDP, Turbo, HT, DDR3-1333MHz Alimentation: 2x Rack Power Distribution Unit Power Cord / Power Supply, Redundant, 500W Primary RAID Controller: Card PERC H700A RAID Controller, 1GB NV Cache, for Cabled HDD Chassis Consolidation Fees (EM-EMEA Only) :Consolidation Fee Server Management Card : iDRAC6 Embedded BMC Système d'exploitation: non inclu</p> | 1 | Pièce |
| <p>REG: N° 26-87-2012 Abdo... DEMIC</p> | | | |
|  | | | |
| Total Bon de livraison N° BL20027 | | 1 | |

Figure 1: Hardware specifications of the server

2. Software stack

The operating system chosen is Debian distribution (as all servers actually operating in the lab) with all packages needed for basic climate servers: Development libraries, development tools, DNS, name server, ftp server, MySQL database, server configuration tools, Web server, administration tools, base and system tools.

In order to configure and install LMDz, RegCM and WARF (later) we have installed the following software:

- Python 2 language interpreter
- GNU Make program
- Fortran 90 compiler
- netCDF Rew and Davis (1990) format I/O library compiled with the above compiler. Source code found from: <ftp://ftp.unidata.ucar.edu/pub/netcdf/netcdf.tar.gz>
- GNU patch program
- MPI2 (Message Passing Library) compiled with the above fortran compiler for parallel runs using multiple core single machines of clusters of machines (our plan for next months). Source code was obtained at:
<http://www.open-mpi.org/software/ompi/v1.4/downloads>
- HDF5 format I/O library compiled with the above fortran compiler to enable netCDF V4 features. Source code obtained at:
<http://www.hdfgroup.org/ftp/HDF5/current/src>
- NCO (netCDF Operators for managing netcdf files). Source code obtained at:
<http://nco.sourceforge.net/src>
- CDO (Climatic Data Operators for managing netcdf files). Source code obtained at:
<https://code.zmaw.de/projects/cdo/files>
- IGES GrADS (Graphical Analysis and Display System). Source code obtained at:
<http://www.iges.org/grads/downloads.html>
- NCL (NCAR CISL Command Language). The NCL can read netCDF output files and sample scripts can be found in the tools/scripts/ncl directory. Source code can be obtained at:
<http://www.ncl.ucar.edu>
Convenient helpers are generally packed in models installed (or planed to be installed in the lab) to use these Scientific plotting and Data Analysis softwares.
- Ferret is an interactive computer visualization and analysis environment designed to meet the needs of oceanographers and meteorologists analyzing large and complex gridded data set.
Source codes can be obtained: <http://www.ferret.noaa.gov/Ferret>

3. Conclusions

Improving the laboratory network has been accelerated by QWECI project and allows researchers to properly conduct their activities in the areas of climate and its impacts in key sectors (such as health) in Senegal.