PAIPIX@ :
From Desktop to Data Servers

http://www.paipix.org

- Old PAIPIX Live - “One of those Knoppix things”
  - present usage at IM and the plan
  - infrastructure at IM

- Updated Requirements and Developments
- New hardware systems at IM

- Present PAIPIX Installer/Live
  - Debian distribution
  - Debian installer and live
  - PAIPIX packages and repositories
  - The support for the meteorology tools

- Conclusions

What ***was*** PAIPIX?

Started as live Linux for scientific appl.: in 2004 -“one of those Knoppix like stuff”

- End 2004 – Complete system en,pt,es,fr,de,it
  version 3.7 - 2 GB live image used until today at IM
  …
- End 2005 – Version 5 to support ***update*** of the installed system changed to be built from “Kanotix”
  …
- 2006 – Transition version 6.

Shortcomings:

- Debian based but packed by a ***very small community***
- The ***installer*** was a bit unstable (application specific)
- PAIPIX was “remastered” - depended on initial image

Some evaluation of “old” PAIPIX

news 20.06.2005

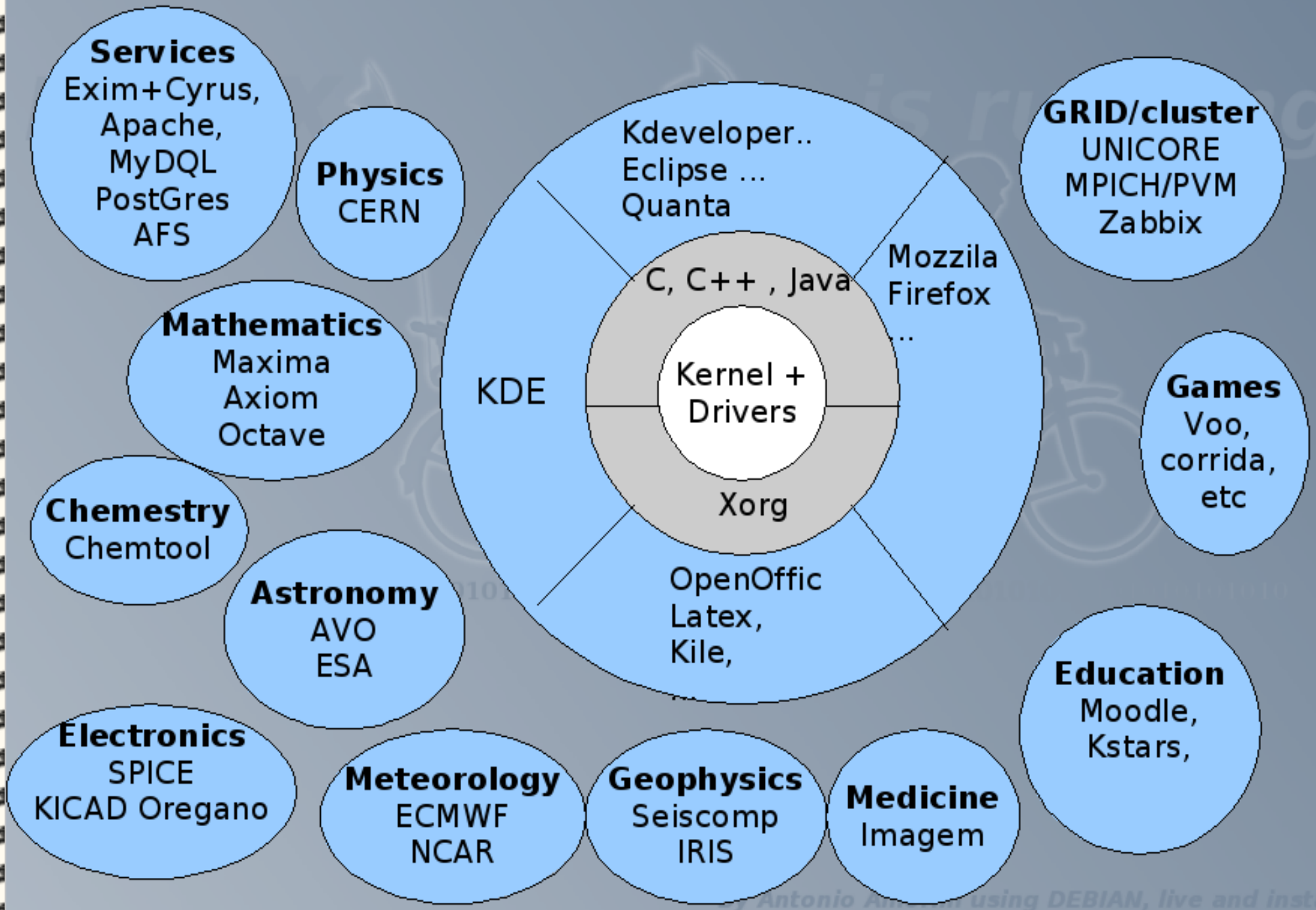
http://www.heise.de/english/newsticker/news/60800

“Moreover, in Version 4.0 a number of expansions have been integrated that have flowed back to Knoppix from the Knoppix-based distributions Kanotix, Quantian, Paipix and Freeduc. With, for example, the Kanotix hardware support for ISDN and DSL adapters from AVM, an improved hard disk installer, scientific software from Quantian and Paipix and learning software for children from Freeduc among them.”

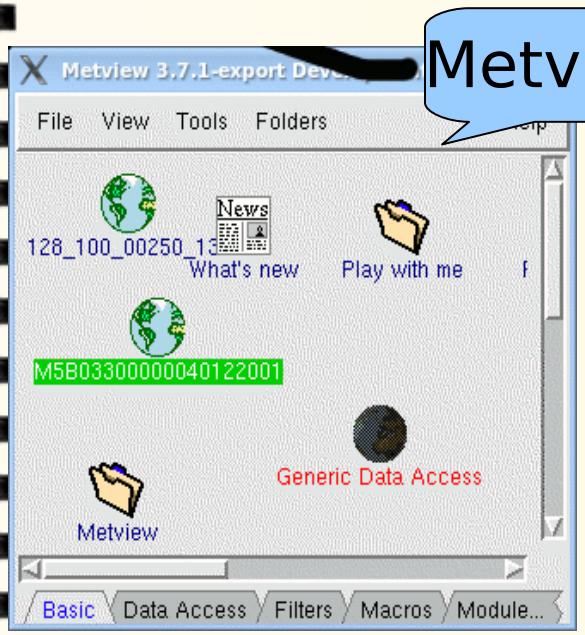
http://distrowatch.com/index.php?distribution=paipix

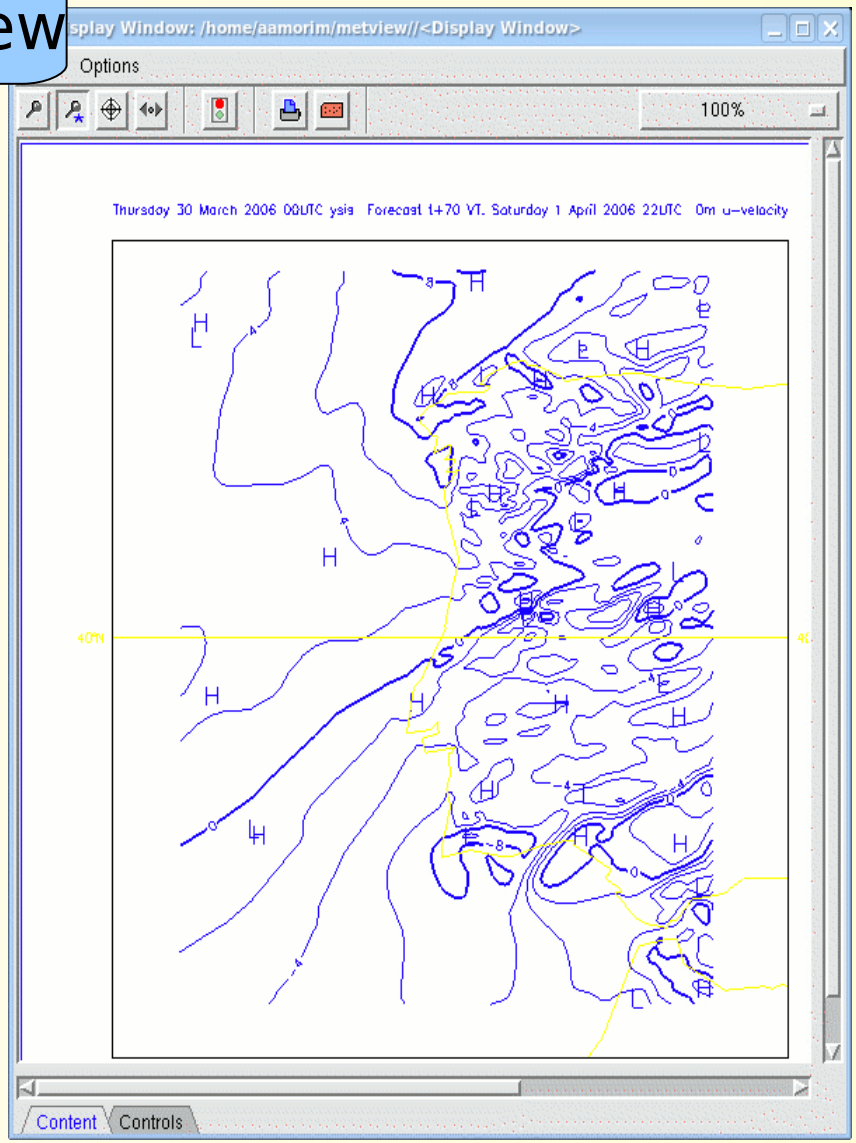
http://quebecos.com/index.php?option=com_content&task=view&id=511&Itemid=2

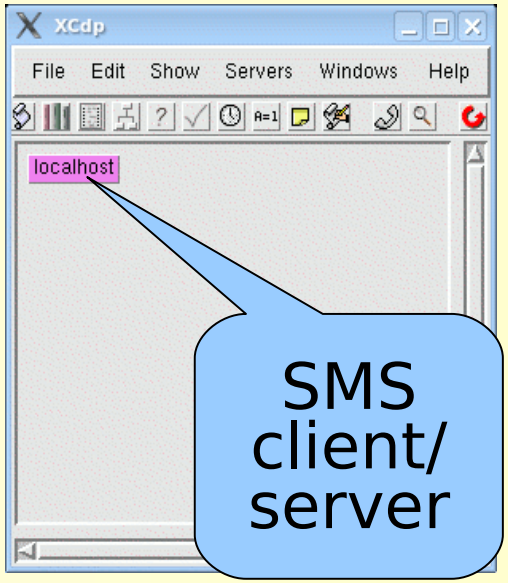
The main PAIPIX components

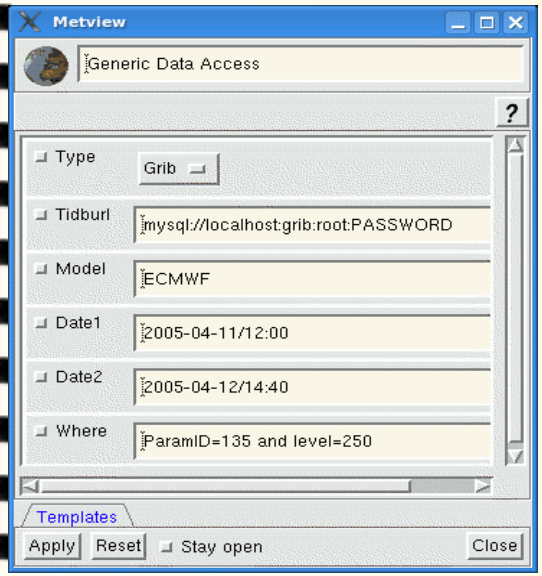


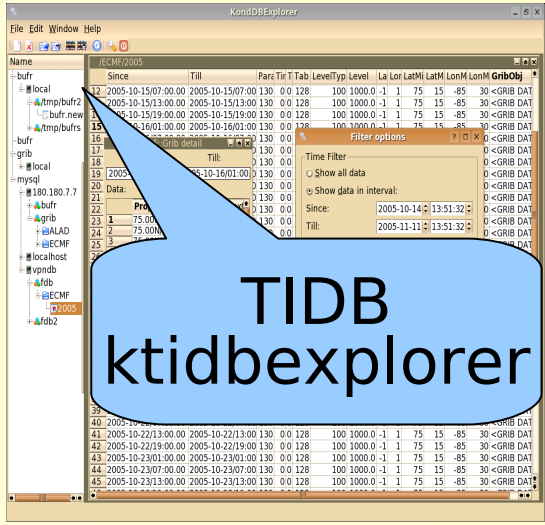
Meteo. Packages TIDB/ ECMWF



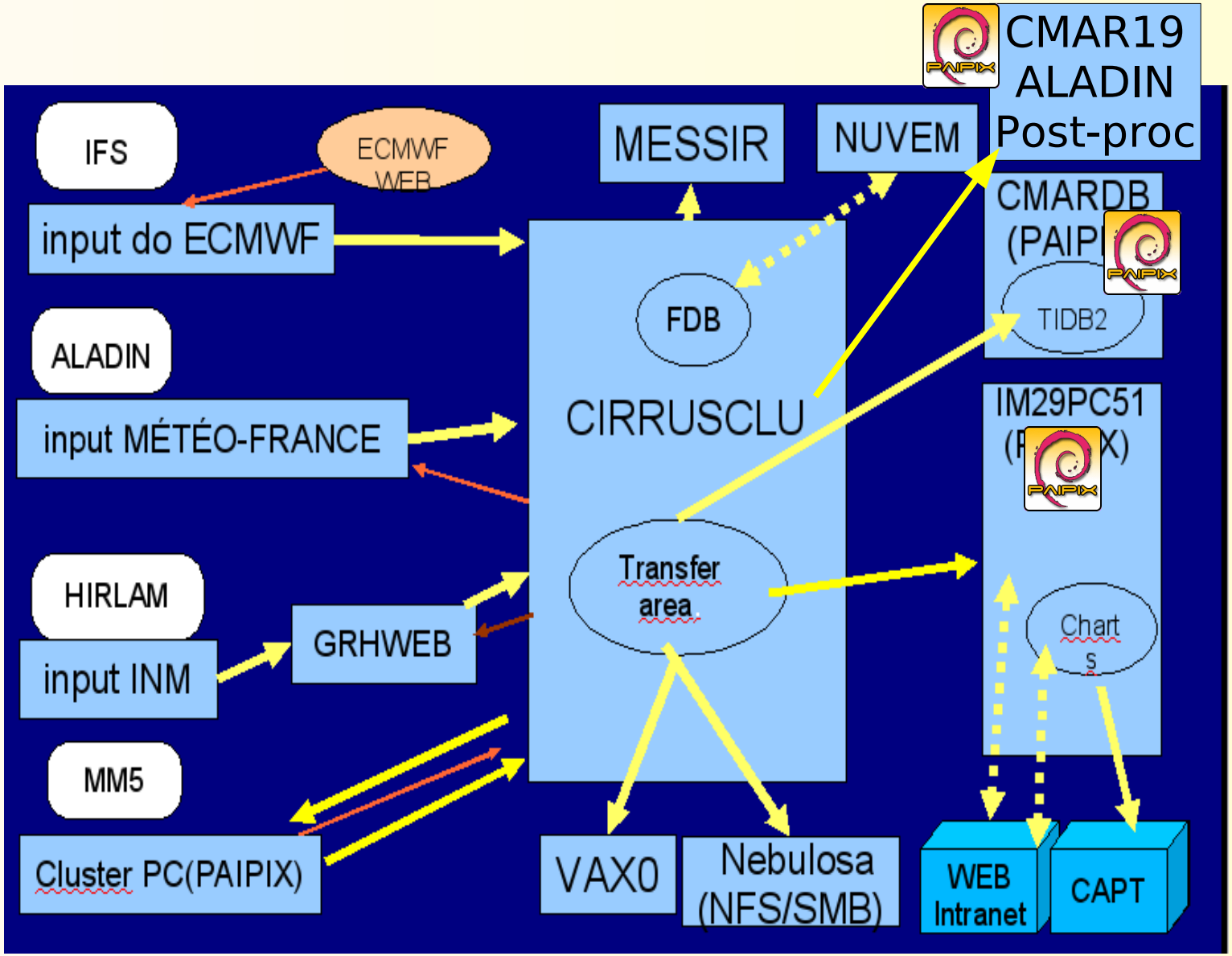








IM: Complex, Heterogeneous



Development Workstations

"Metview" Workstations

The present usage at IM:

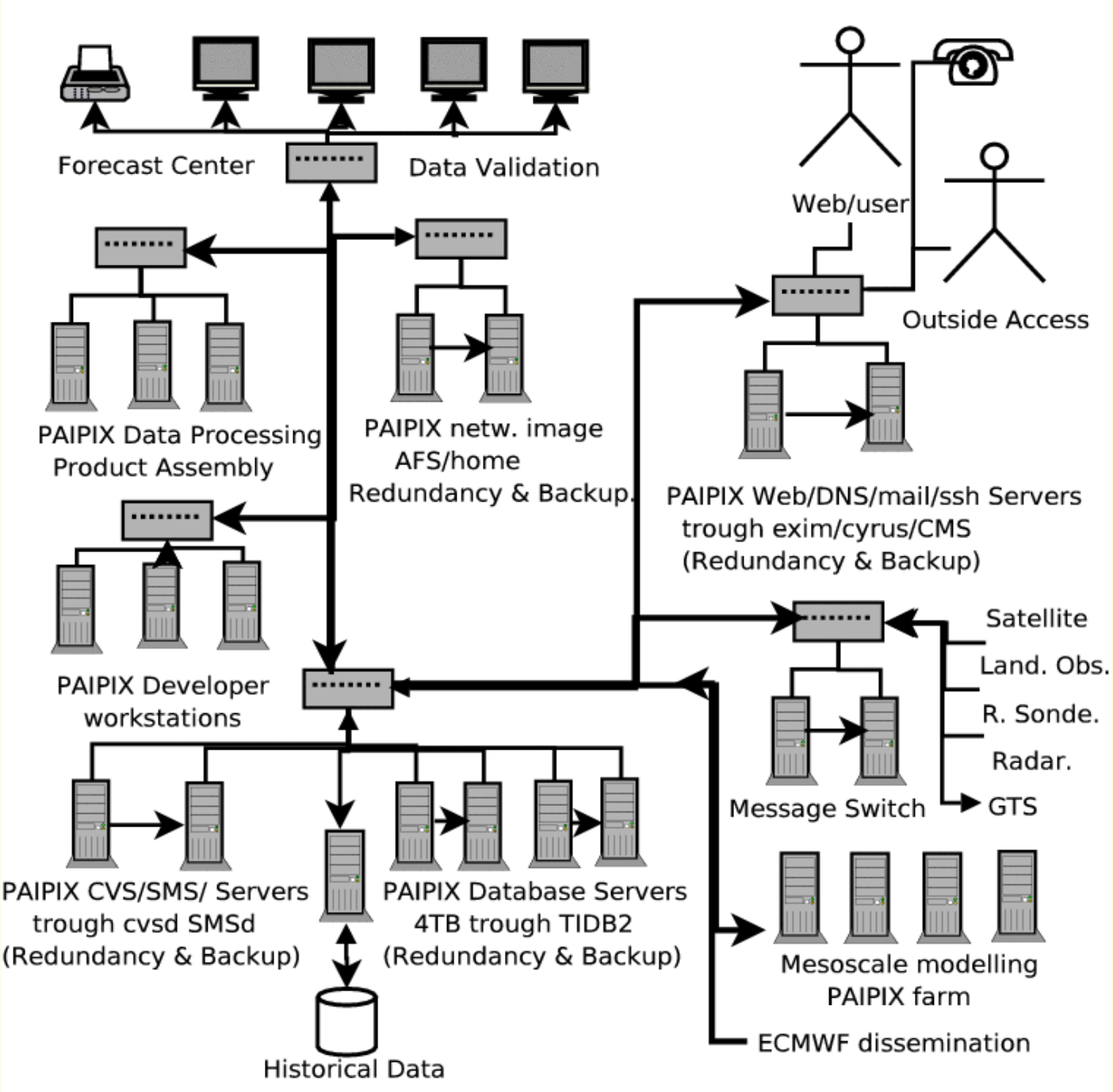
- All new operational forecast plots
- ALADIN model post-processing

- TIDB2 Database with:
  - observations
  - model data
- Database client API
- Database browsing tool

- SMS - cdp/Xcdp clients

- Code development:
  - ECMWF libraries
  - C++, C and Fortran90 compilers
- Model installation tests for ALADIN, ALARO, AROME

What could be envisaged in 2005



The new IM systems - 2007

12 DELL servers
(8 cores + 8 TB Disk)

IBM System p5
10 x16 CPUs

Similar at the Univ. Lisboa

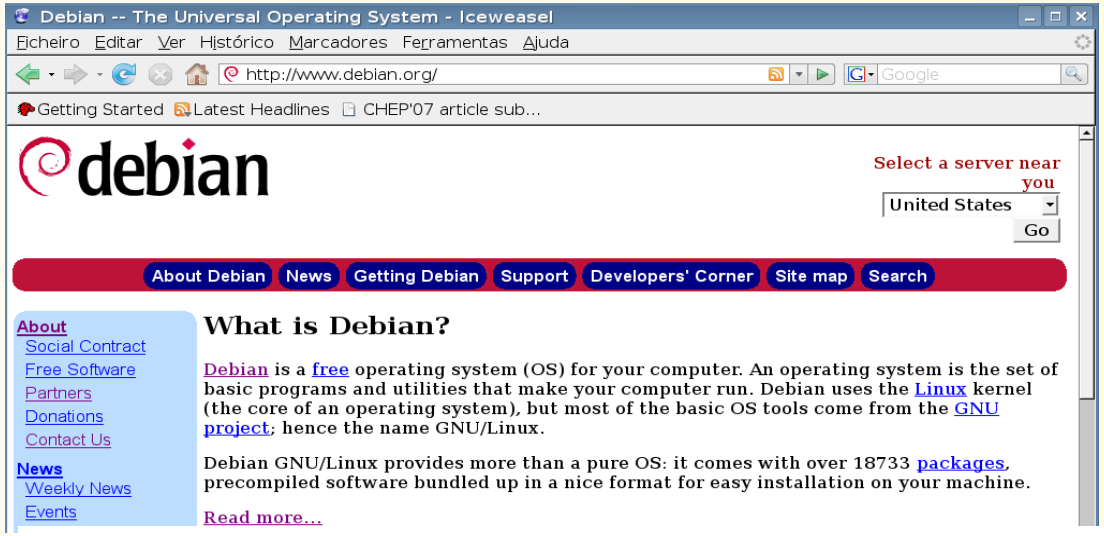
PAIPIX for data processing servers

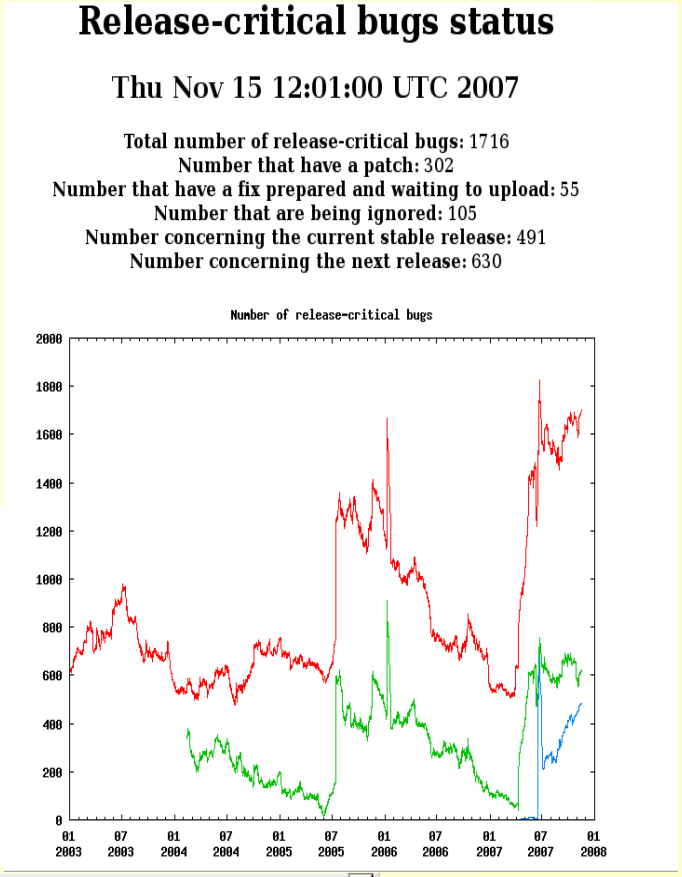
- Directly built from a major Linux distribution
- Include “official” disk installer
- Be upgradeable at any level for any package
- Support the AMD64/Intel E2 64 bit architectures
- Built around the “official” kernel

But maintain:

- Automatic installation
- Live running for testing and evaluation with the installation of new packages in live mode.
- Include meteo applications plus HW/SW monitoring

What is Debian





Installing with the Debian-Installer

For official Debian 4.0r1 installation media and information, see the etch page.

If you'd like something newer to help us test a future release of the installer, or because of hardware problems or other issues, try one of these **daily built images** which contain the latest available version of installer components.

- netinst (generally 135-175 MB) and businesscard (generally 20-50 MB) CD images [alpha] [amd64] [arm] [hppa] [i386] [ia64] [m68k] [mips] [mipsel] [powerpc] [sparc]

What PAIPIX ***has become***?

- 2007 – Paipix 7

(Deb.) Installer live-DVD with:

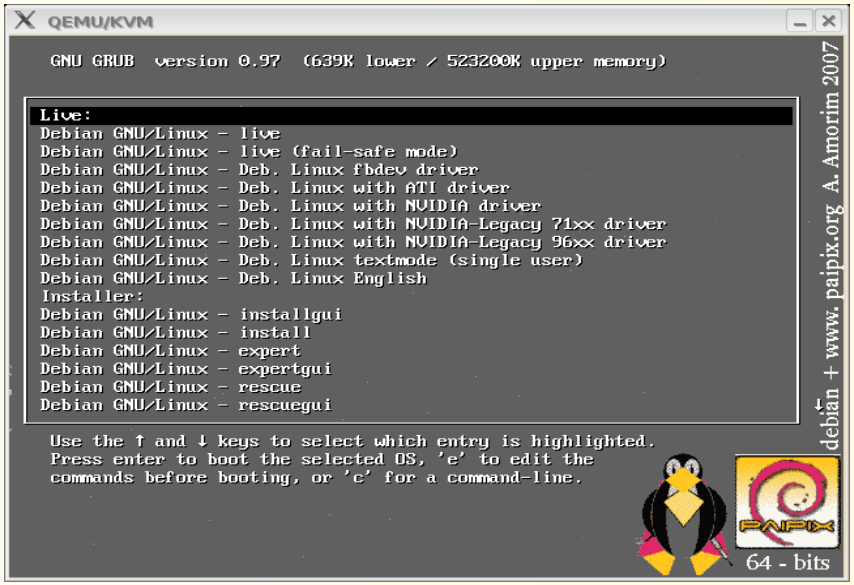
LIVE:
Starting PAIPIX in live mode, start the full KDE, Office and code development environments. The menu PAIPIX allows then to “install” in the memory disk all other applications.

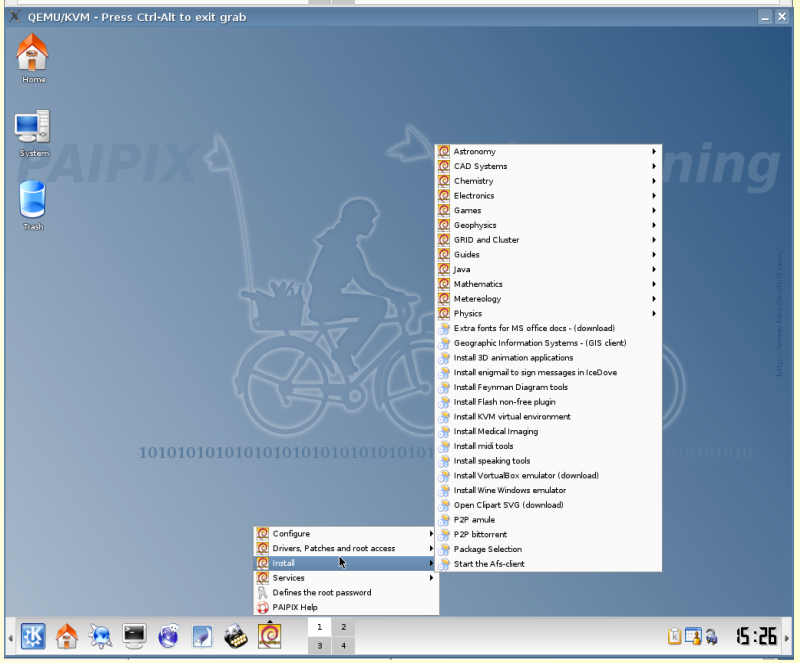
INSTALLER:
Staring PAIPIX in installer one has acces to the fulle debian-installer system witch was “preceeeded” with the “proper” configuration options.

UPDATE:
As part of the new system, the DVD includes a debian packages repository of the type Debian-CDROM that allows update of an older system.

Built daily from scratch for 32 and 64 bits: EN,PT,ES,FR,IT,GR

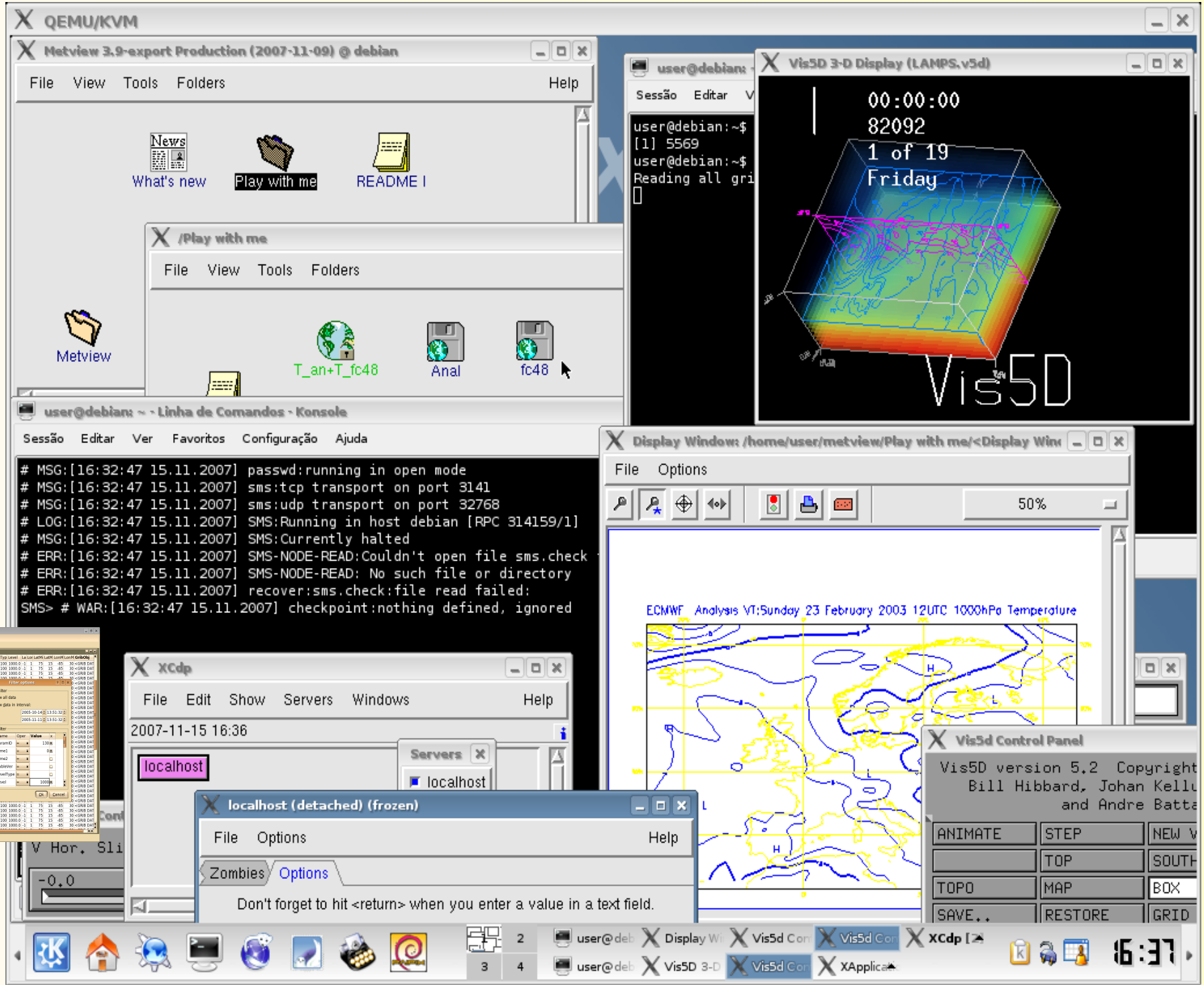
New Version >= 7





New IM Version

both
32
and
64
bits



+ Models?

Work in progress...

+ Unidata

Package Name	C++/Fortran	32 Bits	64 Bits	Status	Avail.
GRIBAPI	GCC/G++	native	native	Final	Free
TIDB2 0.7	GCC/G++	native	native	Final	Free
KTIDBEXPLORER	G++/GCC	native	native	Final	Free
TIDB2/GRIB	(GRIBAPI)	native	native	Final	Free
TIDB2/BUFR	BUFREX/F77	native	native	Final*	Free
libemos 3.4	GCC/GFORT.	native	in 32	Avail	Free
Metview 3.9	G++/PGF90	native	in 32	Final	IM
emoslib	GCC/PGF90	native	in 32	Final	IM
magics	GCC/PGF90	native	in 32	Final	IM
sms 4.4.5	GCC/G++	native	in 32	Final*	IM
vis5d 5.2	GCC/G++	native	native	Final	Free
grads 1.9	GCC/G++	native	native	Final	Free
SIMDAT 0.9.8	sun-java 6	native	native	Config.	Free
Magics ++	G++/GFORT	native	native	wait	Free
Diana	G++/GCC	native	?	wait	Free

The metview package example

in debian/control file

Building: in bootstrap system (pbuilder)

Source: metview
Section: IM
Priority: optional
Maintainer: ECMWF
Build-Depends: debhelper, ksh, imagemagick, g++ [i386], libgl1-mesa-dev [i386], netcdfg-dev [i386], libmotif-dev [i386], libgd2-xpm-dev [i386], libdb1-compat [i386], vis5d-tcl [i386], libgdbm-dev [i386], flex [i386], libnetcdf++3 [i386], libxt-dev [i386], x11proto-print-dev [i386], libglu1-mesa-dev [i386], libxmu-dev [i386], libxp-dev [i386], bison [i386], impgi [i386], libc6-dev [i386], libglw1-mesa-dev [i386], ia32-libs-paipix [amd64]

- All mesa 3D support had to be “backported” from testing
  - (depended on Lesstif)
- All openmotif + libDRM had to be backported
- For 64 bits – ia32-libs-paipix including: netcdf + GLW + ...

The system gets the packages authomatically from:

deb http://ftp.de.debian.org/debian etch main contrib non-free
deb http://mirror.paipix.org/debian-paipix etch main contrib non-free
deb http://mirror.paipix.org/debian-specific etch main contrib non-free

this one (restricted to IM)

Conclusions

- The present system at IM is being used for data processing and development tasks.
- The PAIPIX system has been changed, in the mean time, to fully support the data server infrastructure
- New hardware is being installed that will increase the robustness and homogeneity, allowing the new developments to arrive faster.
- With the new software and hardware in place we plan to focus more on introducing innovative applications and products.
- The Free PAIPIX will continue to incorporate all tools that will become available to support Universities.