

CDE: Automatically create portable software packages



Philip Guo and Dawson Engler
Stanford University

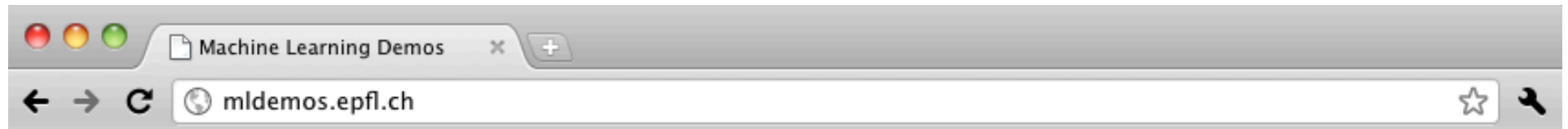


MLDemos

by Basilio Noris

[Learning Algorithms and Systems Laboratory](#)
Ecole Polytechnique Fédérale de Lausanne





Downloads

Most likely this is what you're here for, so...

Binaries:



[MLDemos 0.3.1 for Windows](#)

minimum requirements:

XP SP3 + [VCredist2008](#)



[MLDemos 0.3.1 for Mac](#)

minimum requirements: Snow Leopard



[MLDemos 0.1.3 for Linux 32bit \(deb\)](#)

built for: Ubuntu 10.04

Sources:

[GIT repository](#) (current release 0.3.1)

[source backup](#) (0.3.0)

The code was created originally on Visual Studio, and therefore generates a ludicrous amount of warnings with GCC...

The software was compiled and tested on Windows XP/7, Ubuntu and Kubuntu 10.04, Gentoo and Mac OSX Snow Leopard, using QtCreator 1.3 and 2.1.

Requirements

The code requires Qt (4.6) and OpenCV (2.1). Previous versions of both libraries might work as well but you might as well use the newer version.

Be sure to adjust your include and lib paths to point them to the correct directories.



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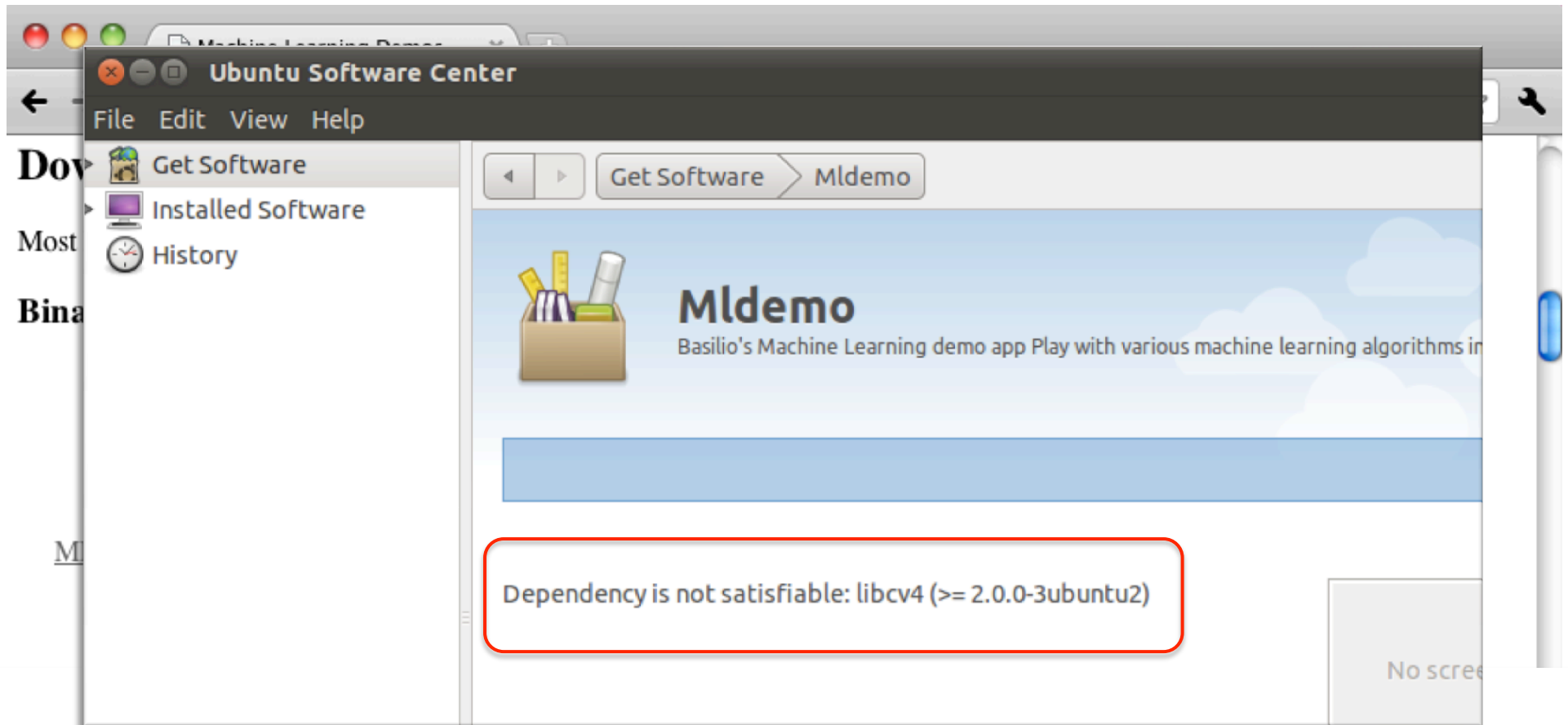


MLDemos 0.1.3 for Linux 32bit (deb)

built for: Ubuntu 10.04



Ubuntu
10.04



Installation fails on both neighboring releases of Ubuntu (9.10 and 10.10)



Downloads

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MLDemos 0.3.1 for Windows

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MLDemos 0.1.3 for Linux 32bit (deb)

built for: Ubuntu 10.04



CentOS

fedora



debian



Mandriva



Linux Mint
from freedom came elegance

CDE: Automatic packaging of Code, Data, and Environment



1. Create package on your x86-Linux computer

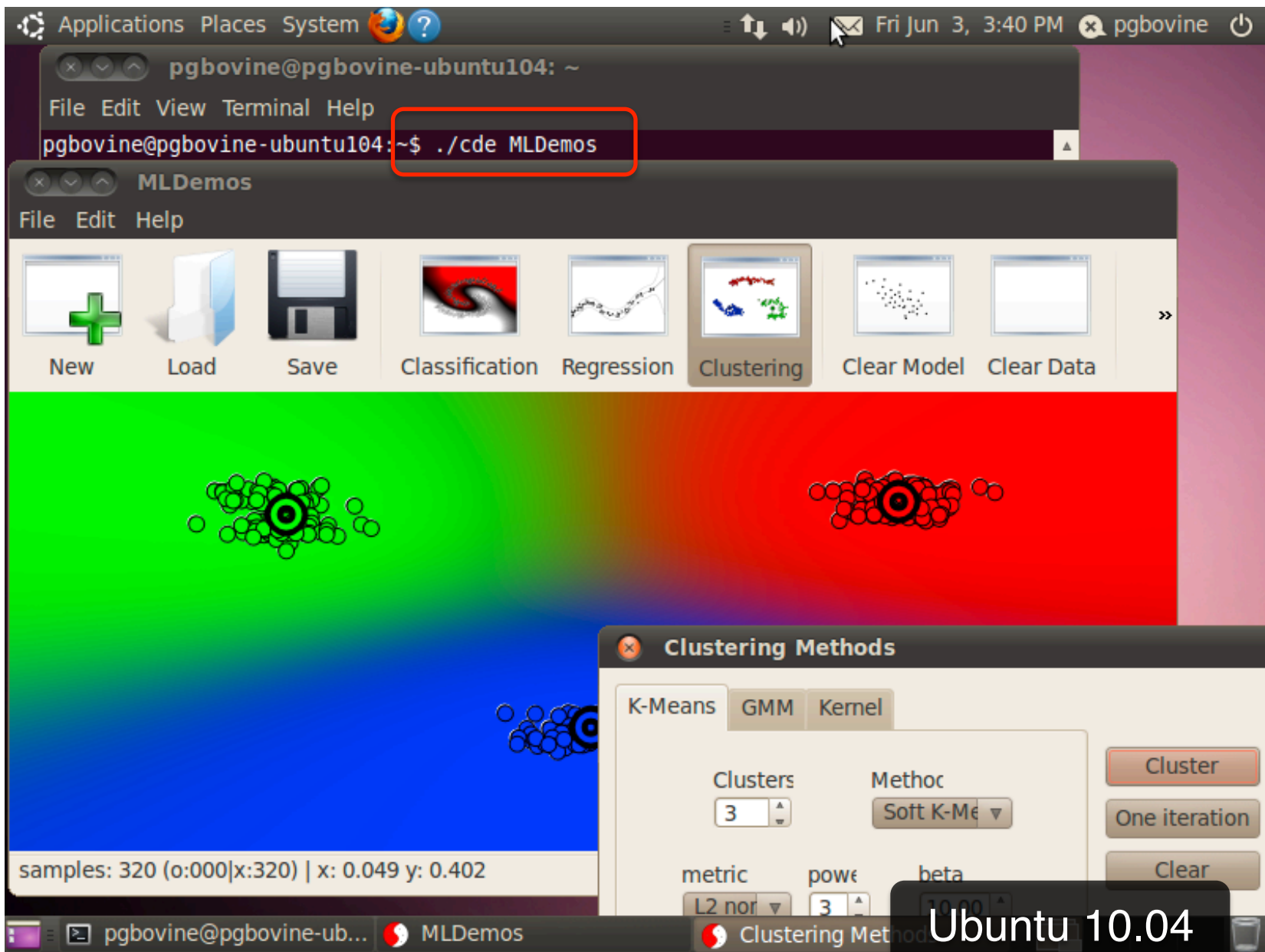
Prepend any set of commands with **'cde'**, and CDE runs them and automatically packages up their dependencies.

2. Transfer package

A package is simply a directory of files.

3. Execute software from within package on any modern x86-Linux computer

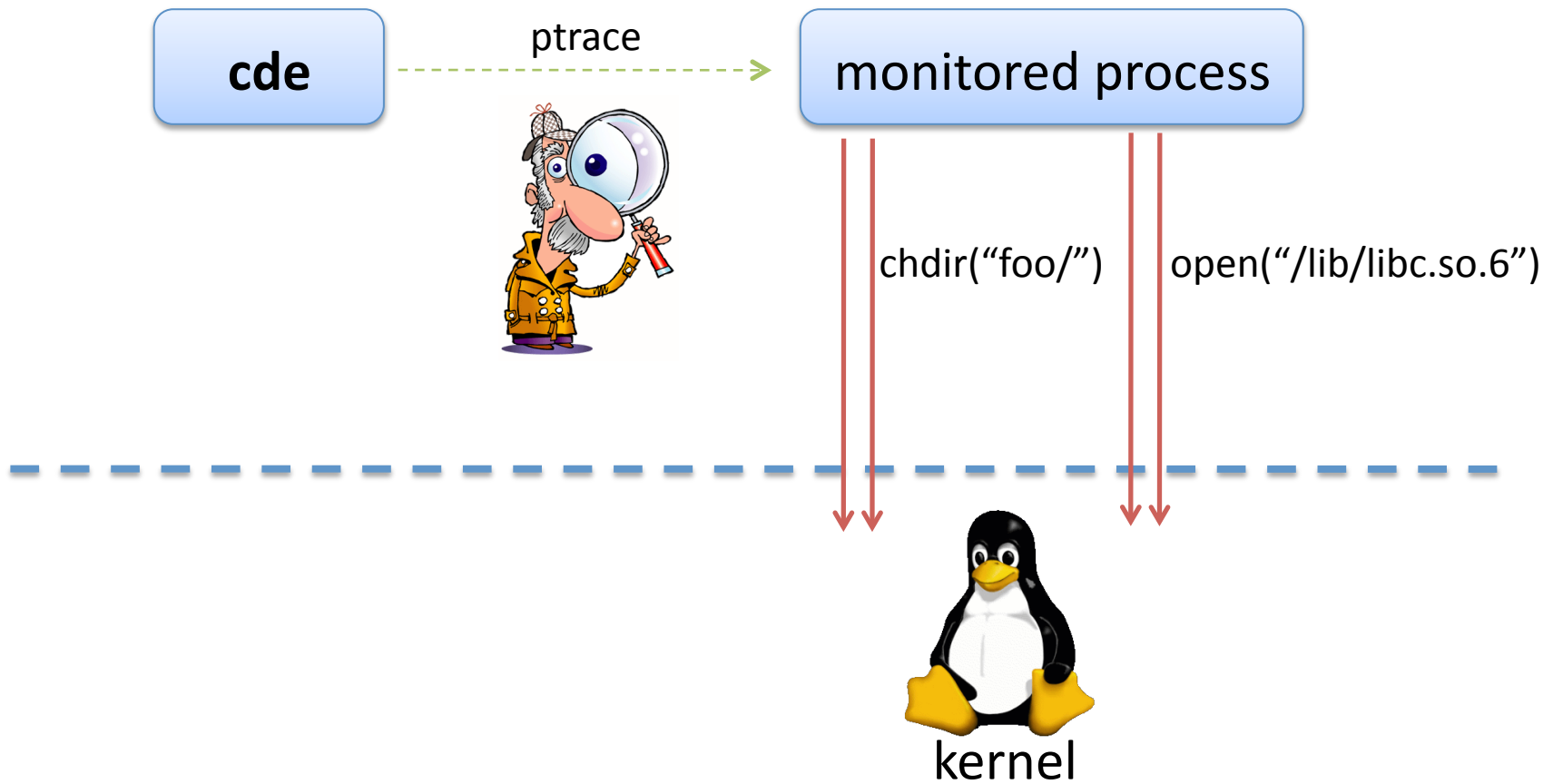
Prepend those same commands with **'cde-exec'**, and CDE runs them natively.



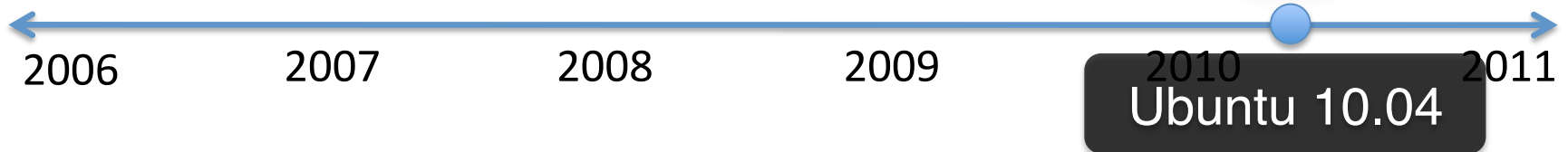
Ubuntu 10.04



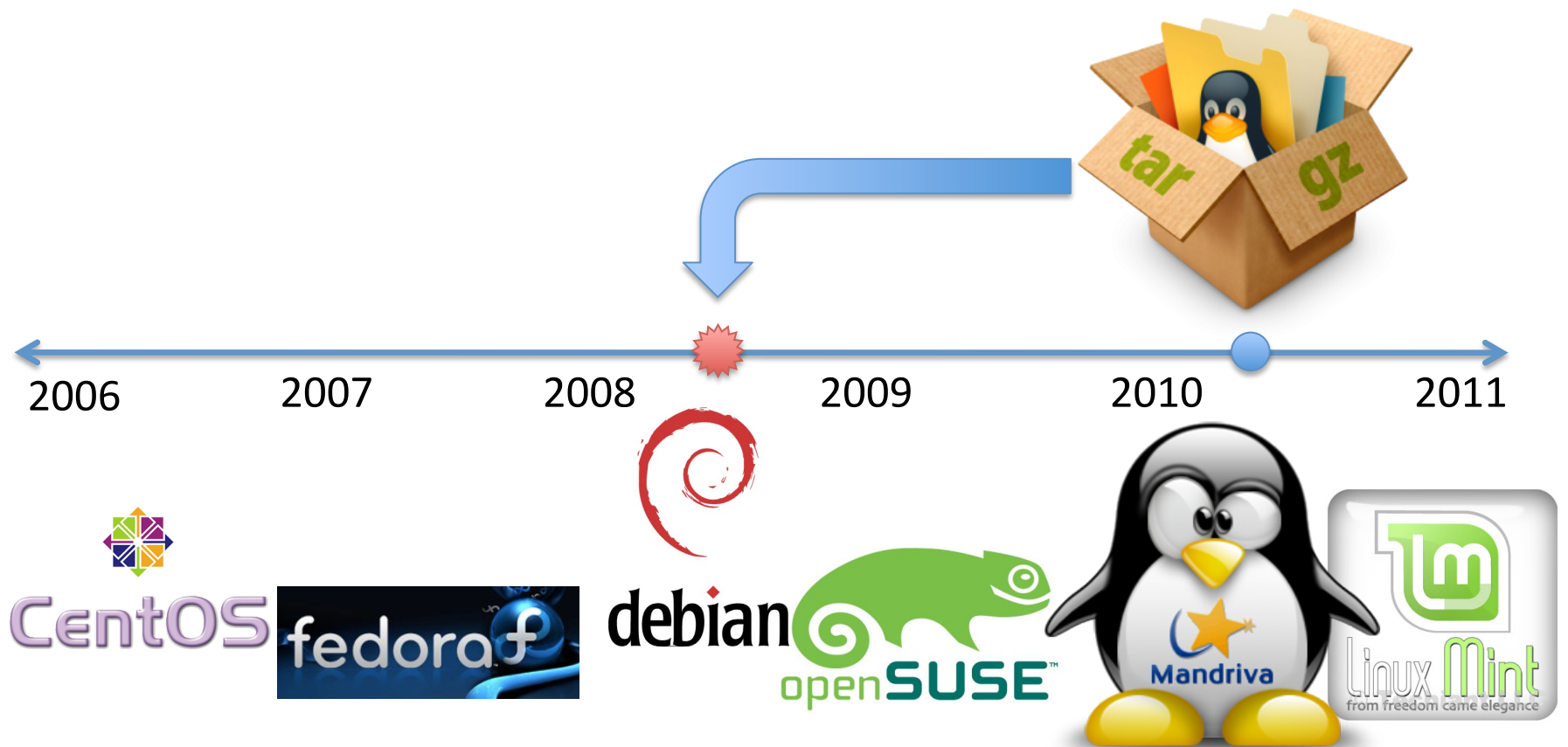
cde ML Demos



cde ML Demos



cde ML Demos



The screenshot shows a Linux desktop environment with a terminal window and an application window titled "MLDemos".

The terminal window shows the following commands and output:

```
pgbovine@debian: ~/cde-package/cde-root
File Edit View Terminal Tabs Help
pgbovine@debian:~/cde-package/cde-root$ uname -srv
Linux 2.6.26-2-686 #1 SMP Thu Nov 25 01:53:57 UTC 2010
pgbovine@debian:~/cde-package/cde-root$ ../cde-exec MLDemos
```

The "MLDemos" application window has a menu bar with "File", "Edit", and "Help". Below the menu bar are icons for "New", "Load", "Save", "Classification", "Regression", "Clustering", and "Clear Model". The "Clustering" icon is selected. The main area of the application shows a 2D scatter plot with three clusters of data points, each with a centroid marked by a bullseye. The background is a gradient from green to red to blue. At the bottom of the window, it says "samples: 200 (o:000|x:200) | x: 0.362 y: 0.918".

A "Clustering Methods" dialog box is open in the foreground, showing the "K-Means" tab. It has the following settings:

- Clusters: 3
- Method: Soft K-Mea
- metric: L2 norm
- power: 3
- beta: 10.00

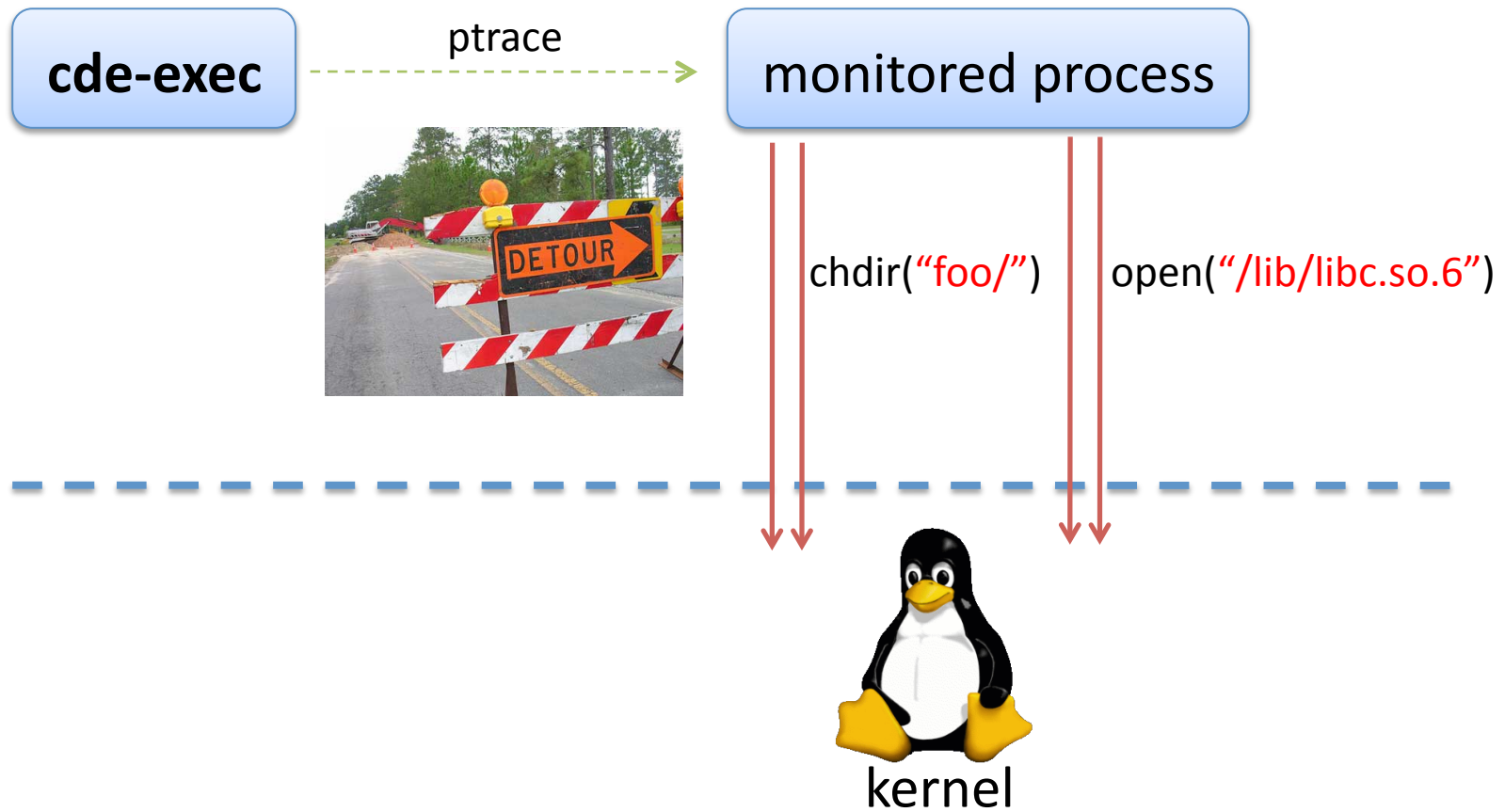
Buttons for "Cluster", "One iteration", and "Clear" are visible on the right side of the dialog.

Debian

Ubuntu 10.04



cde-exec ML Demos



The image shows a Linux Mint desktop environment. At the top, a terminal window displays the following commands and output:

```
pgbovine@pgbovine-VirtualBox ~/cde-package/cde-root $ uname -srv
Linux 2.6.35-22-generic #33-Ubuntu SMP Sun Sep 19 20:34:50 UTC 2010
pgbovine@pgbovine-VirtualBox ~/cde-package/cde-root $ ../cde-exec MLDemos
```

Below the terminal is the MLDemos application window. It features a menu bar (File, Edit, Help) and a toolbar with icons for New, Load, Save, Classification, Regression, Clustering, Clear Model, and Clear Data. The main area shows a 2D scatter plot with three clusters of data points (green, red, and blue) and their corresponding centroids. The status bar at the bottom of the MLDemos window reads: "samples: 290 (o:000|x:290) | x: 0.979 y: 0.347".

Overlaid on the MLDemos window is the Clustering Methods dialog box. It has tabs for K-Means, GMM, and Kernel. The K-Means tab is active, showing the following settings:

- Clusters: 3
- Method: Soft K-Me
- metric: L2 nor
- power: 3
- beta: 10.00

Buttons for Cluster, One iteration, and Clear are visible on the right side of the dialog.

The desktop environment includes a taskbar at the bottom with icons for Menu, Terminal, MLDemos, and Clustering Meth... A "Linux Mint" logo is positioned in the bottom right corner of the desktop area.



The screenshot displays a Mandriva Linux desktop environment. At the top, a terminal window titled "pgbovine@localhost:~/cde-package/cde-root" shows the following commands and output:

```
[pgbovine@localhost cde-root]$ uname -srv
Linux 2.6.33.7-desktop586-2mb #1 SMP Mon Sep 20 18:19:58 UTC 2010
[pgbovine@localhost cde-root]$ ../cde-exec MLDemos
```

Below the terminal is the "MLDemos" application window. It features a menu bar with "File", "Edit", and "Help". The toolbar includes icons for "New", "Load", "Save", "Classification", "Regression", "Clustering", and "Clear Model". The main display area shows a 2D scatter plot with three clusters of data points (green, red, and blue) and their corresponding centroids. The background is a color gradient from green to red to blue.

An open "Clustering Methods" dialog box is positioned in the foreground. It has tabs for "K-Means", "GMM", and "Kernel". The "K-Means" tab is active, showing the following settings:

- Clusters: 3
- Methoc: Soft K-Me
- metric: L2 nor
- power: 3
- beta: 10.00

Buttons for "Cluster", "One iteration", and "Clear" are visible on the right side of the dialog.

The desktop taskbar at the bottom shows the user "pgbovine@local...", the "MLDemos" application, and the "Clustering Met..." dialog. The system tray on the right displays the time "14:50:33" and a power icon.

Mandriva



The screenshot displays the Ubuntu 9.10 desktop environment. At the top, the system tray shows the date and time as "Fri Jun 3, 6:59 PM" and the username "ubuntu". The main window is a terminal titled "ubuntu@ubuntu: ~/cde-package/cde-root" with the following output:

```
ubuntu@ubuntu:~/cde-package/cde-root$ uname -srv
Linux 2.6.31-14-generic #48-Ubuntu SMP Fri Oct 16 14:04:26 UTC 2009
ubuntu@ubuntu:~/cde-package/cde-root$ ../cde-exec MLDemos
```

Below the terminal is the "MLDemos" application window, which features a menu bar with "File", "Edit", and "Help". The toolbar includes icons for "New", "Load", "Save", "Classification", "Regression", "Clustering", "Clear Model", and "Clear Data". The main display area shows a 2D scatter plot with a green-to-red color gradient. Three clusters are visible, each with a central black circle and a red ring. The bottom status bar of the window reads "samples: 220 (o:000|x:220) | x: 0.158 y: 0.996". Overlaid on the bottom right is the "Clustering Methods" dialog box, which has tabs for "K-Means", "GMM", and "Kernel". The "K-Means" tab is active, showing "Clusters" set to 3, "Metric" set to "L2 norm", "power" set to 3, and "beta" set to 10.00. The "Method" dropdown is set to "Soft K-Me". Buttons for "Cluster", "One iteration", and "Clear" are visible on the right side of the dialog.

Ubuntu 9.10



The screenshot displays a Linux desktop environment with the following elements:

- Terminal Window:** Shows the command prompt `linux@linux:~/cde-package/cde-root`. The user has executed `uname -srv`, resulting in the output: `Linux 2.6.27.7-9-default #1 SMP 2008-12-04 18:10:04 +0100`. The next command is `../cde-exec MLDemos`.
- MLDemos Application:** A graphical interface with a menu bar (File, Edit, Help) and a toolbar containing icons for New, Load, Save, Classification, Regression, Clustering, and Clear Model. The main display area shows a 2D scatter plot with three clusters of data points (green, red, and blue) and their corresponding centroids marked with bullseyes. The background is a color gradient from green to red to blue.
- Clustering Methods Dialog:** A sub-window titled "Clustering Methods" with tabs for K-Means, GMM, and Kernel. The K-Means tab is active, showing settings for Clusters (3), Method (Soft K-Means), metric (L2 norm), power (3), and beta (10.00). Buttons for Cluster, One iteration, and Clear are visible.
- System Tray:** Shows the system clock as "Fri Jun 3, 6:45 PM" and various system icons.

openSUSE



Applications Places System

pgbovine@debian: ~/cde-package/cde-root

```

File Edit View Terminal Tabs Help
pgbovine@debian:~/cde-package/cde-root$ uname -srv
Linux 2.6.26-2-686 #1 SMP Thu Nov 25 01:53:57 UTC 2010
pgbovine@debian:~/cde-package/cde-root$ ../cde-exec MLDemos

```

MLDemos

File Edit Help

New Load Save Classification Regression Clustering Clear Model

Clustering Methods

K-Means GMM Kernel

Clusters: 3 Method: Soft K-Mea

metric: L2 norm power: 3 beta: 10.00

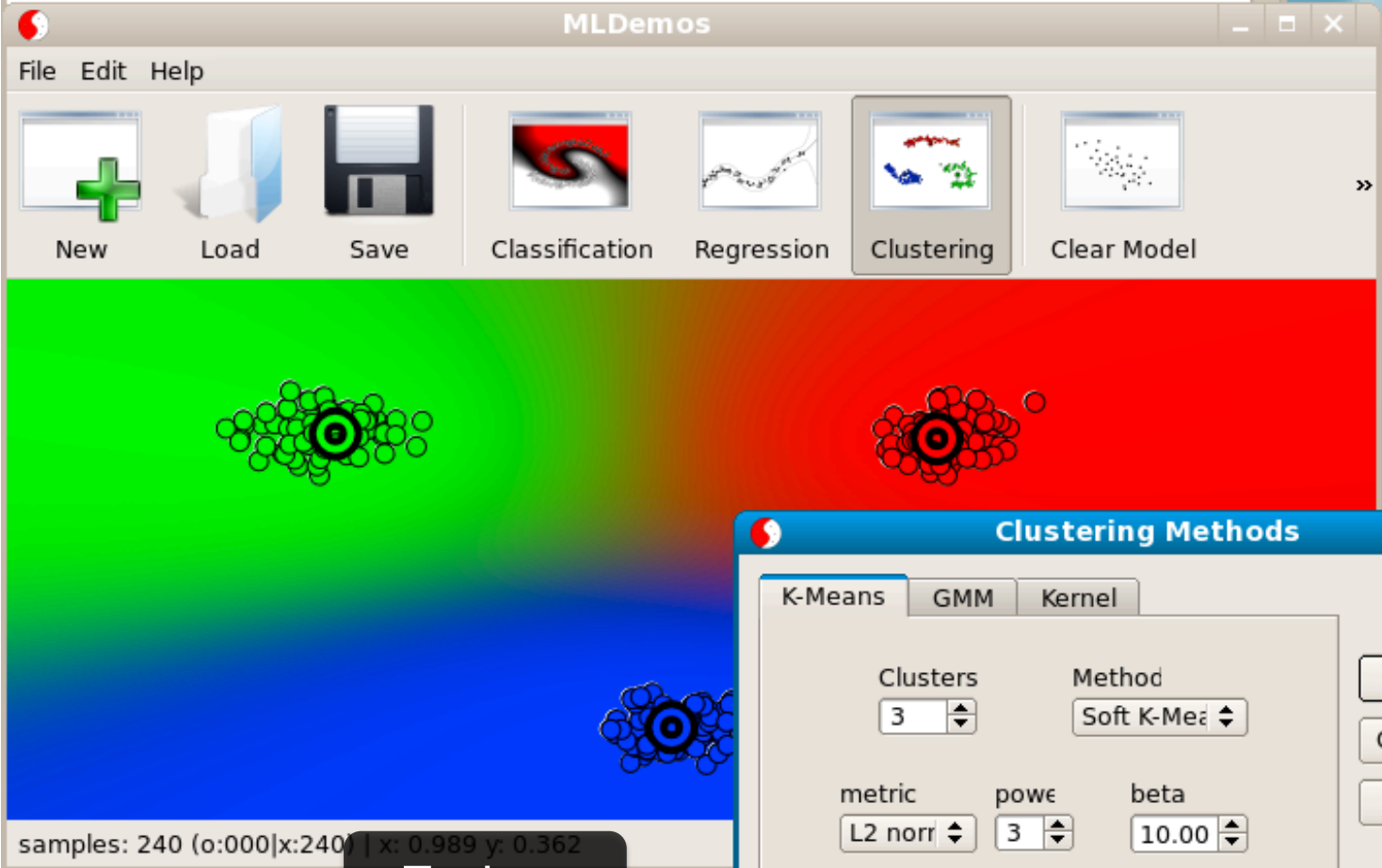
Cluster One iteration Clear

samples: 200 (o:000|x:200) | x: 0.362 y: 0.918

Debian



```
fedora@localhost:~/cde-package/cde-root  
File Edit View Terminal Tabs Help  
[fedora@localhost cde-root]$ uname -srv  
Linux 2.6.23.1-42.fc8 #1 SMP Tue Oct 30 13:55:12 EDT 2007  
[fedora@localhost cde-root]$ ../cde-exec MLDemos
```

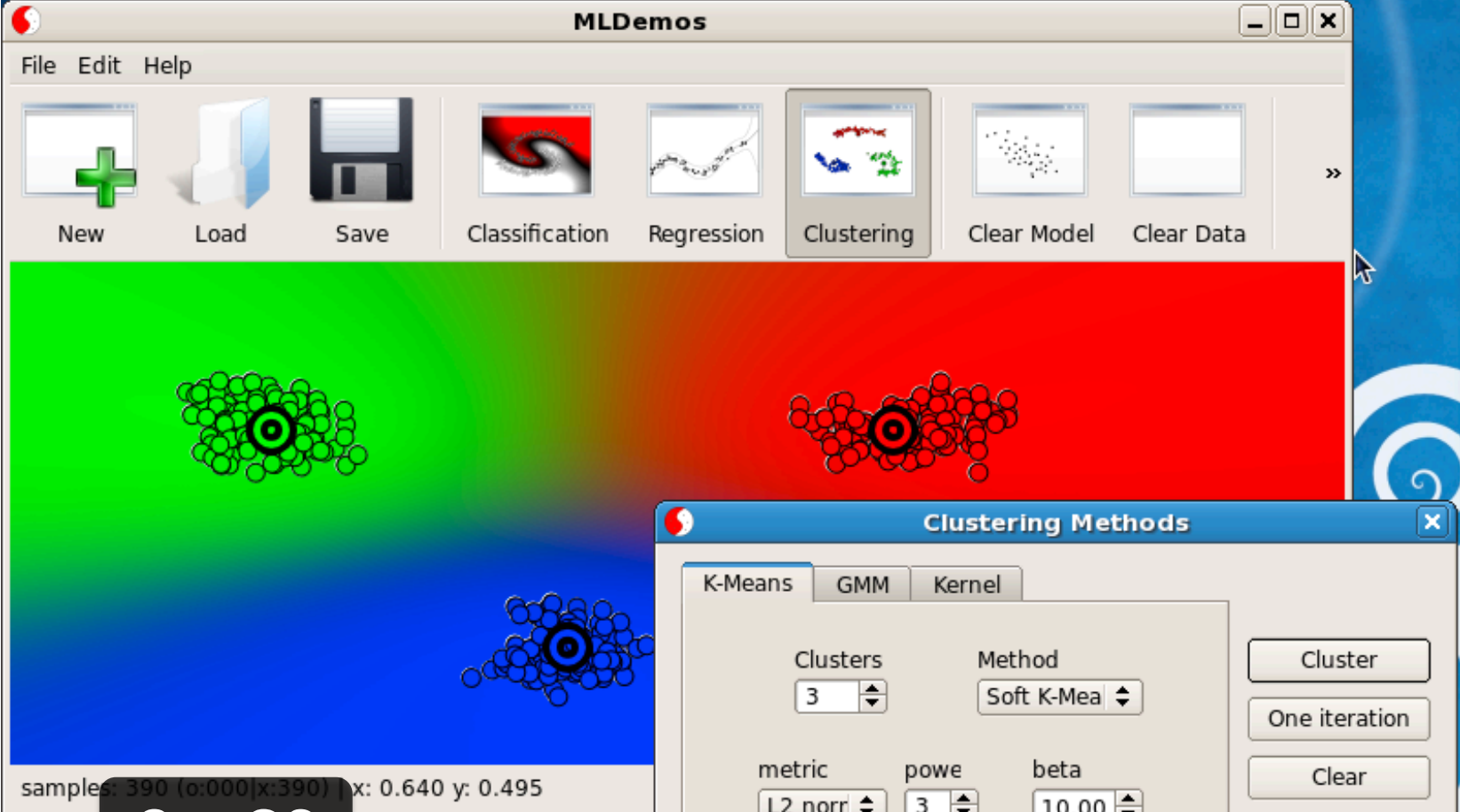


The Clustering Methods dialog box is open, showing the K-Means settings. The "Clusters" field is set to 3, and the "Method" is set to "Soft K-Means". The "metric" is "L2 norm", "power" is 3, and "beta" is 10.00. There are buttons for "Cluster", "One iteration", and "Clear".

Fedora




```
centos@livecd:~/cde-package/cde-root  
File Edit View Terminal Tabs Help  
[centos@livecd cde-root]$ uname -srv  
Linux 2.6.18-194.el5 #1 SMP Fri Apr 2 14:58:35 EDT 2010  
[centos@livecd cde-root]$ ../cde-exec MLDemos
```



CentOS



The image shows a Knoppix desktop environment. At the top, a terminal window titled "Shell - Konsole" displays the following commands and output:

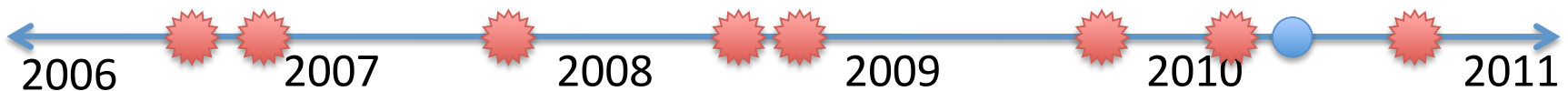
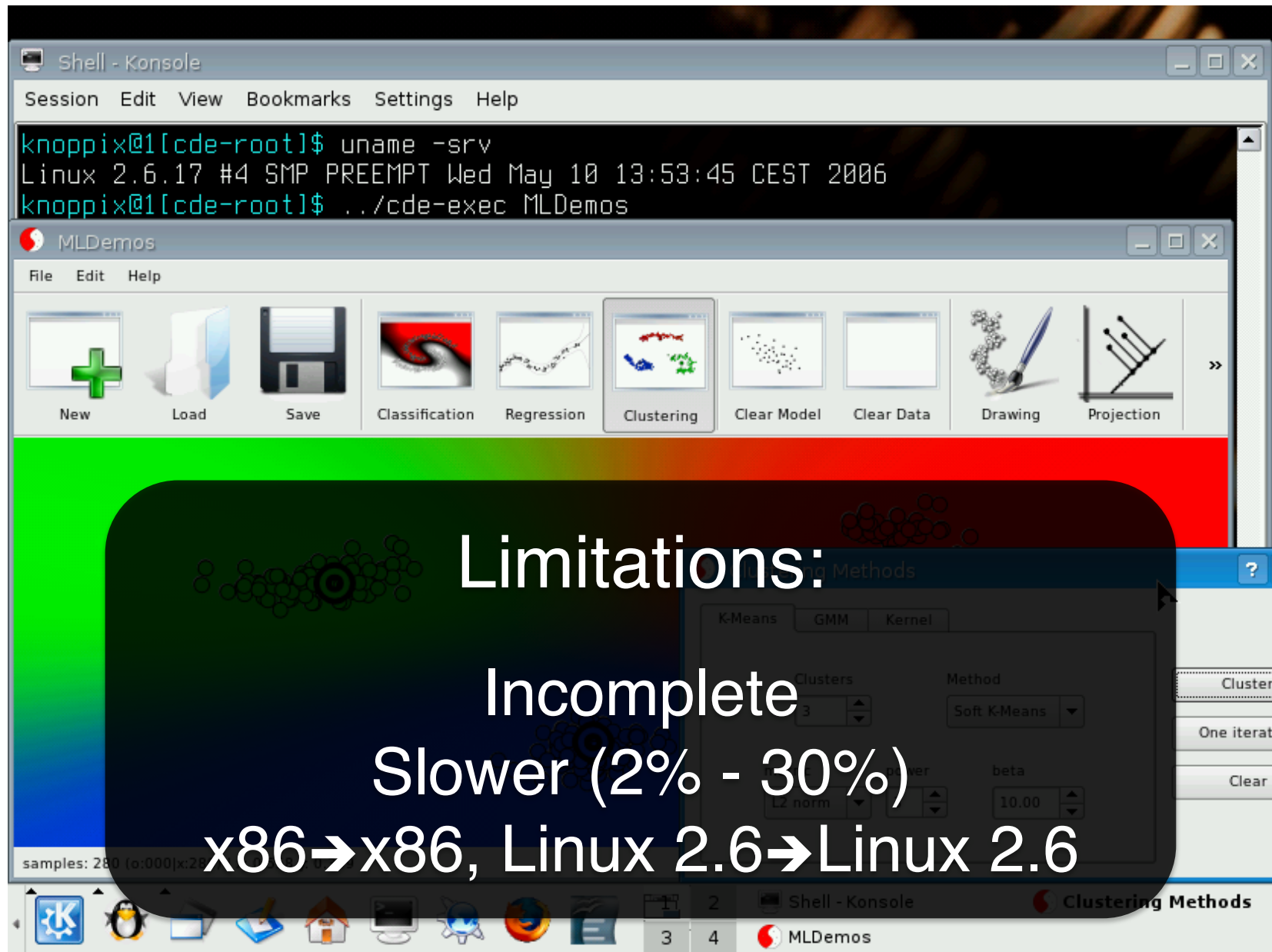
```
knoppix@1[cde-root]$ uname -srv
Linux 2.6.17 #4 SMP PREEMPT Wed May 10 13:53:45 CEST 2006
knoppix@1[cde-root]$ ../cde-exec MLDemos
```

Below the terminal is the "MLDemos" application window. It features a menu bar with "File", "Edit", and "Help". The main toolbar includes icons for "New", "Load", "Save", "Classification", "Regression", "Clustering", "Clear Model", "Clear Data", "Drawing", and "Projection". The "Clustering" icon is highlighted. The main display area shows a 2D scatter plot with a green-to-red-to-blue gradient background. Three clusters of data points are visible, each with a central centroid marked by a bullseye. A "Clustering Methods" dialog box is open in the foreground, showing the "K-Means" tab selected. The dialog contains the following settings:

- Clusters: 3
- Method: Soft K-Means
- metric: L2 norm
- power: 3
- beta: 10.00

Buttons for "Cluster", "One iterat", and "Clear" are visible on the right side of the dialog. At the bottom of the desktop, a taskbar shows the "Knoppix" logo and several application icons. The system tray on the right includes "Shell - Konsole" and "Clustering Methods".





Downloads

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Binaries:



MLDemos 0.3.2 for Windows
minimum requirements:
XP SP3



MLDemos 0.3.3 for Mac
minimum requirements: Snow Leopard



MLDemos 0.3.2 CDE
requirements: kernel 2.6.X
thanks to Philip Guo!

The Linux binaries have been packaged with CDE ([website here](#)), a packaging tool that allows to easily create self-containing software and scripts on x86-linux machines. To run it:

- 1.) *Download package*
- 2.) `tar -jxvf MLDemos-0.3.2-cde.tar.bz2`
- 3.) `MLDemos-0.3.2-cde/mldemos`

In its current form, the CDE package does not allow loading and saving of external files, but every other functionality works. A big thanks to Philip Guo for making this tool possible!

Sources:

[GIT repository](#) (current release 0.3.3)
[source backup](#) (0.3.0)

CDE: Automatic packaging of Code, Data, and Environment



2500+ downloads
(Google for “cde linux”)

Real-world use cases:

- Sharing prototype software
- Reproducing research experiments
- Running new software on older distros
- Deploying computations to cluster/cloud
- Distributing class programming assignments