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Linux Desktop
an Alternative to Microsoft

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May 2003

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Introduction

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History

- 1991
  - Linux is introduced and X.11 is ported on Linux
- 1998-1999
  - KDE 1.0 & GNOME 1.0 real GUI Environments for Linux
- 2001
  - Ximian 1.0 (Exchange Client)
- 2002
  - Star Office 6.0 / Open Office 1.0
  - Mozilla 1.0
  - KDE 3.0 & GNOME 2.0
- 2003
  - City of Munich switches to Linux

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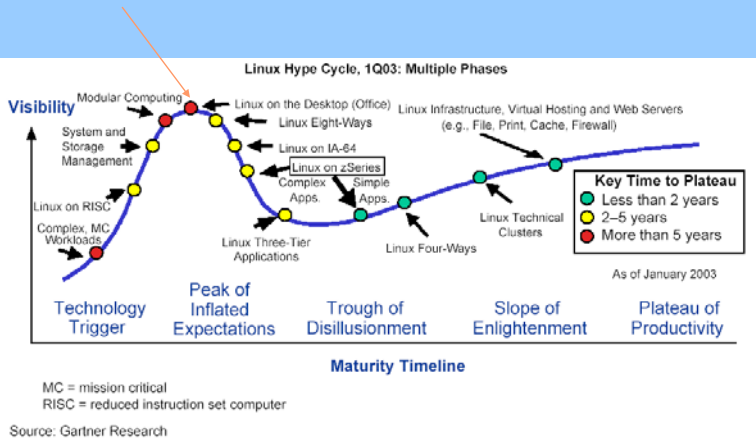
What is Open Source

- Open Source is not Linux but Linux is an Open Source software. Linux can be used with non OS Software
- Open Source is not Freeware. It is a software witch has sources available for every body
- Open Source is professional software. We can find (buy) support on OS
- Non Open Source and OpenSource software can be merged.

Open Source License Overview

- Free redistribution
- Source code
- Derived work
  - Always allowed but different way of working depending on the license
- Integrity of the author's source code
- No Discrimination Against Persons or Groups
- No Discrimination Against Fields of Endeavor
  - No possibility to restrict the use to specific usages
- Distribution the license
- License Must Not Be Specific to a Product
- The License Must Not Restrict Other Software
  - Allows the mix of OS & Commercial softwares
- The License must be technology-neutral

Linux Hype Cycle



Gartner
January 2003

The Linux adoption cycle (Open Source Application Foundation)

- **Phase 1: Highly technical users**
  - Engineers, System Administrators, Scientists, Content creators ...
  - ***Now***
  - Broad-scale adoption of Linux
- **Phase 2: Transactional workers, web-centric consumers**
  - Call-Centre staff, Point of Sale workers, Car Dealers, Data Entry workers ...
  - ***Starting in 2004***
  - Significant adoption of Linux
- **Phase 3: Knowledge workers, small businesses, mainstream consumers**
  - Managers, Marketing staff, Business owners, Reporters ...
  - ***No major adoption in the US until 2007, if then***
  - Some adoption of Linux

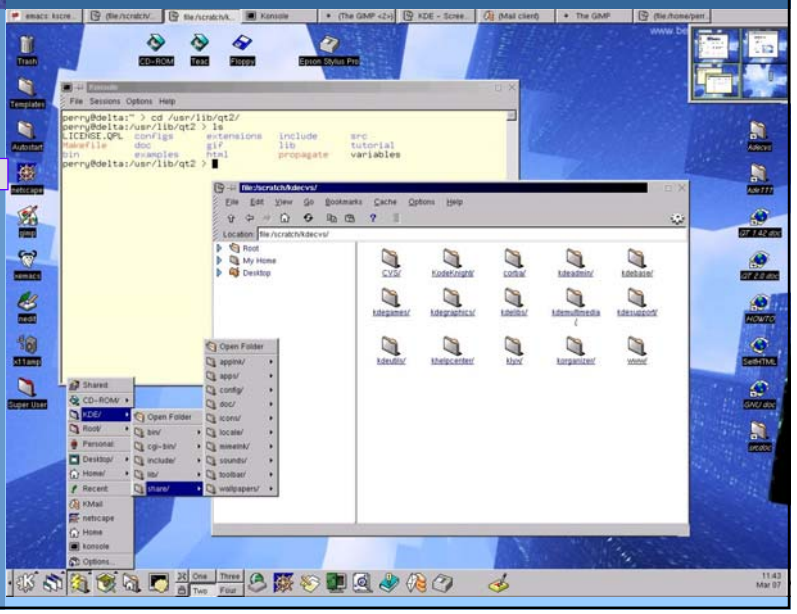
Desktop Linux

IDC figures	
2003	9.5 Million Linux Desktops
2006	27.8 Million Linux Desktops (7% market share – 10% shipments) > To the Macintosh OS

Munich city Government	**14.000 seats**
Schools in Extremadura, Spain	**80.000 seats**
People's PCs in Thailand	**1.000.000 seats**

Technical aspects

Linux look



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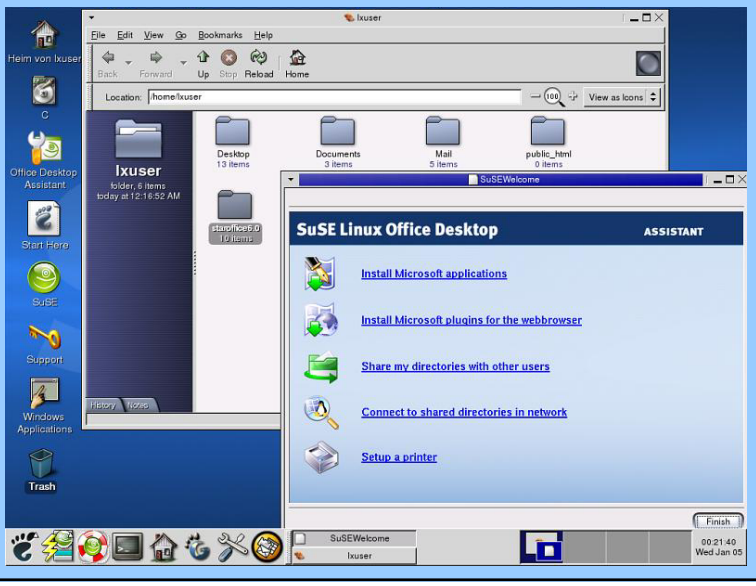
There exists different “flavours”



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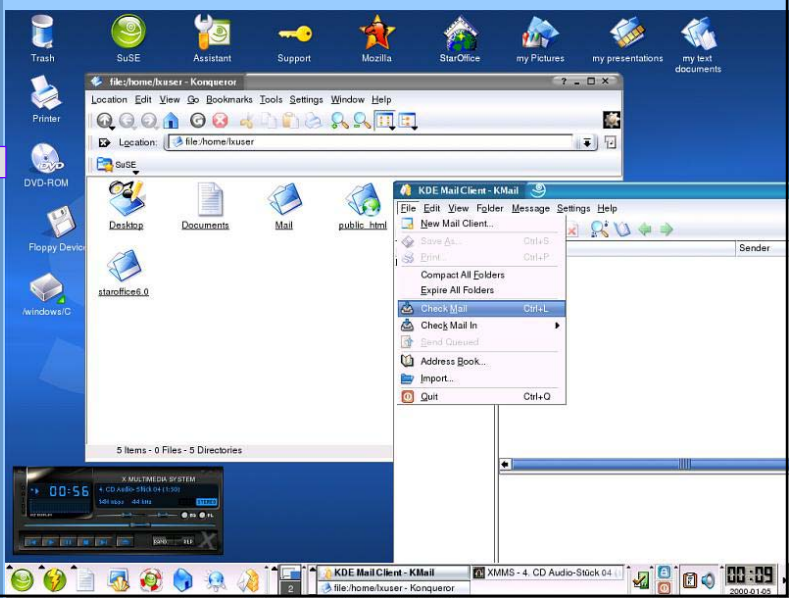
There exists different packages



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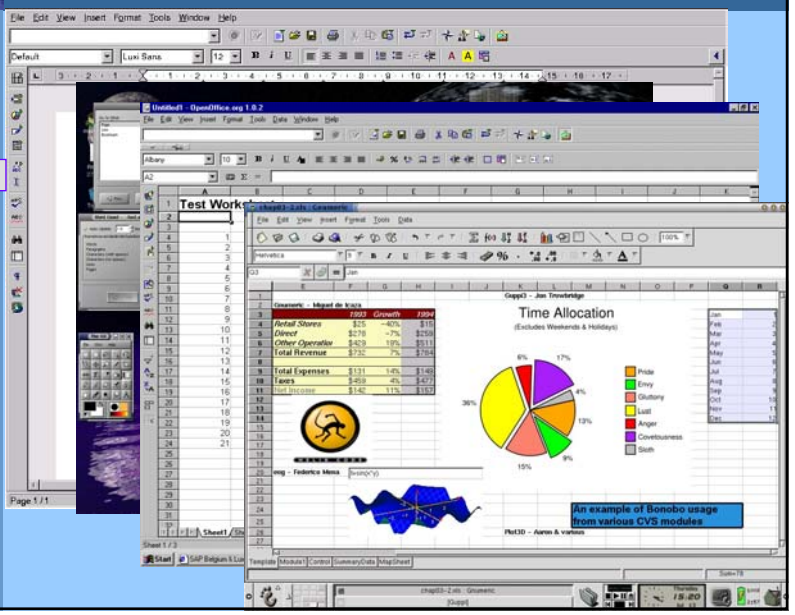
Office alternatives look



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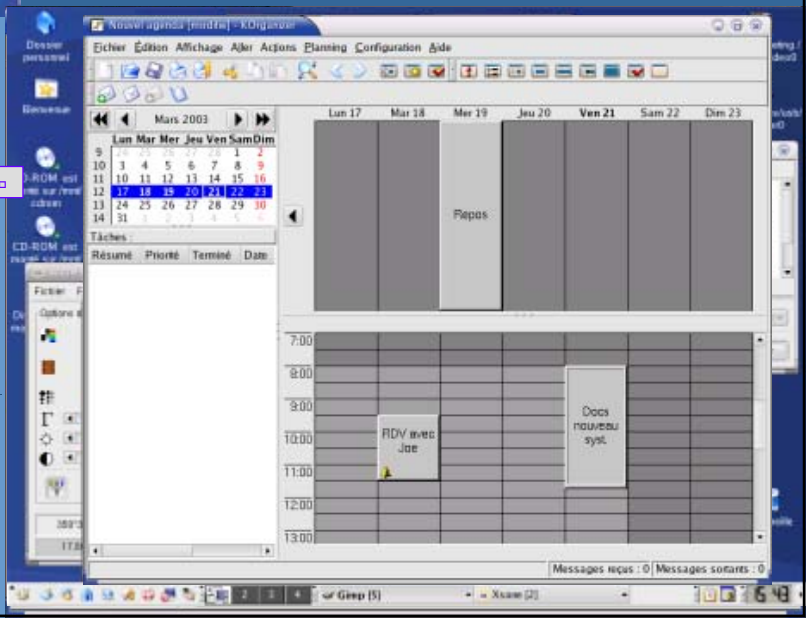
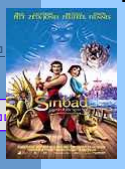
Other programs



State of the product

- Desktop ☺
  - Gnome and KDE
- Office applications 😐
  - No MS Office – No Internet Explorer – No Outlook
  - Open Office compatible with MS-Office for text not for macros – others available
  - Mozzilla, Evolution, Ximian but compatibilty problems
- Thick clients 😐
  - Some are available some not (Powerbuilder)
- Hardware support 😐

Kind of users



- Technical users
  - Adopted by developers, administrators, scientis, 3D animators
  - No availability problems
  - Ex: Sindbad (Dreamworks) developed on 1000 Linux WS
- Transactional workers
  - If no thick client problem => a good solution
  - Differentiation with the home PC
- Knowledge workers
  - Lack of application support
  - Office usage to heavy
  - Training necessary

Sector approach

- SMB ☺
  - Ability to change & Sensibility to costs
  - Support and training problem
- Education ☺
  - Ability to change & Sensibility to costs
  - Interest in the concept
- Public sector ☺
  - Sensibility to costs
  - Interest in the concept
  - Problem with training and ability to change

Different possibilities

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Windows XP W2K

- Low Risk
  - Software will run or will generate the lowest modifications
- User satisfaction
  - Users ask what they know
  - Low training necessary
- Cost
  - Hardware cost quite low (standard material)
  - Licence costs still low (120 € OS OEM +/-)

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Linux

- Cost
  - Licence for free
  - Support may be paid if requested
- Risks
  - Hidden costs : Training, user efficiency, compatibility problems
- Applications
  - Cannot be for general purpose
  - Well adapted to specific environment

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Winterm Kinds

- Pure browser-based
- Winterm (also known as Citrix)
- X.11 or X-Window servers (in this world the client and the server are inverted: the terminal is the server!).
- More sophisticated machines with XP embedded, Linux or Windows CE as internal OS. Combining the pure browser, with Winterm or X.11 and the capability to run local applications.

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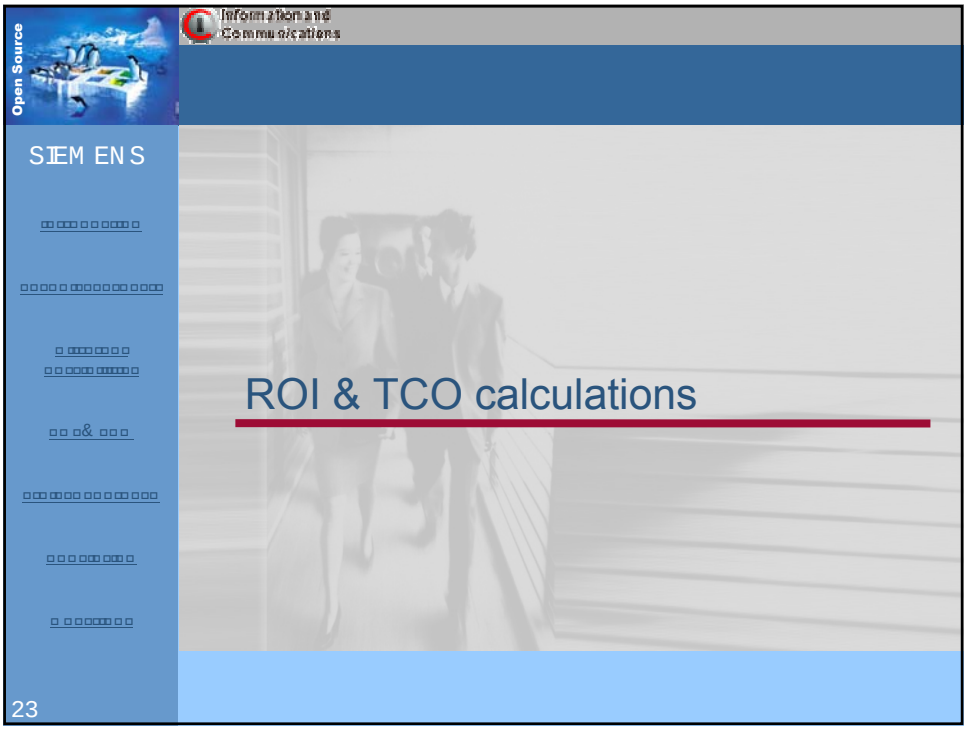
Don’t forget hybrid solutions

- Open Source software can be used on Proprietary OS and vice versa.
  - Open Office on Windows
  - Oracle on Linux
- Linux Server with Microsoft workstations is possible and vice versa (Samba)
- Browser based applications and some thick clients can work on Linux and Windows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ROI & TCO calculations
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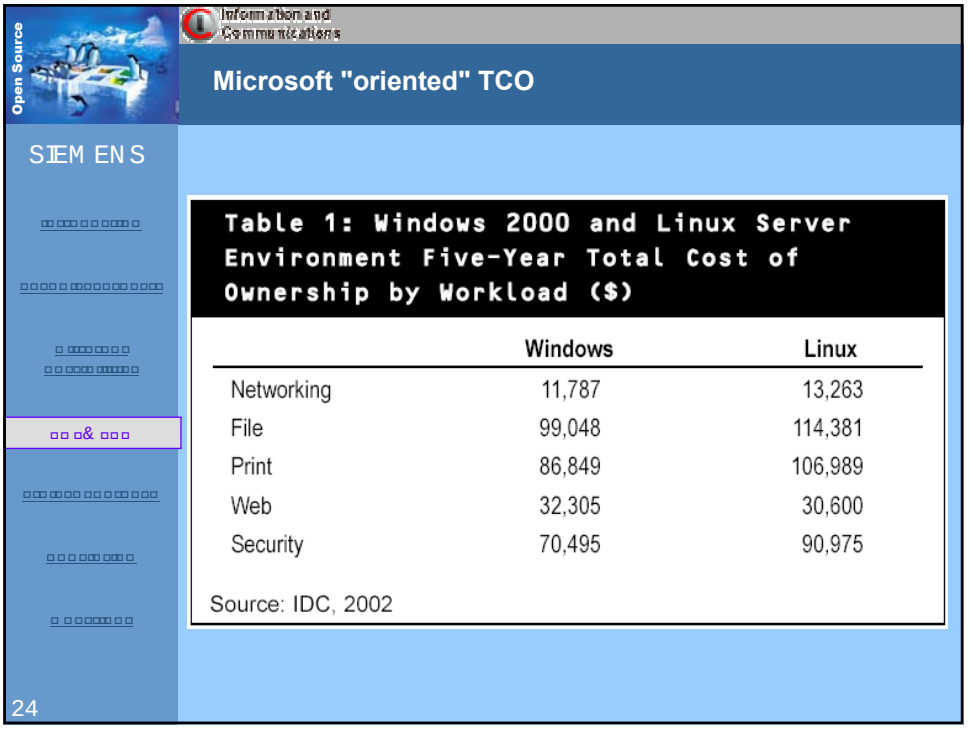
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Microsoft "oriented" TCO
Table 1: Windows 2000 and Linux Server Environment Five-Year Total Cost of Ownership by Workload ($)
Windows
Linux
Networking 11,787 13,263
File 99,048 114,381
Print 86,849 106,989
Web 32,305 30,600
Security 70,495 90,975
Source: IDC, 2002
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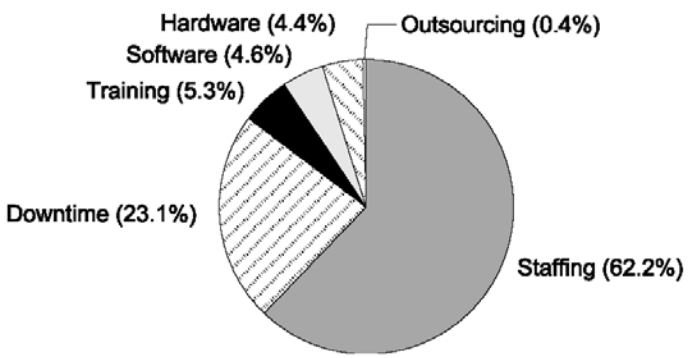
Calculation base

Figure 1: Server Environment Average Five-Year Total Cost of Ownership by Cost Category



Source: IDC, 2002

Linux Oriented TCO (10/2001)

Hardware	Software	Unit Cost	Total Cost (504 users)
At work: 17-inch Display; 128 MB of RAM, 20 GB hard disk, 900-MHz Celeron	Windows 2000 Office 2000	$1,219 $479	$855,792
At home: 15-inch Display with 256 MB of RAM & network card	XP/Office	$1,436	$574,400
Rack; 2 x 1-GHz PIII, 2 GB of RAM, 36 GB disk, dual controllers 1 TB shared storage	Windows 2000 Advanced Server Back Office 2000 499 CALs	$84,421 $3,999 $232	$204,188
School Total			$1,059,980
Parent Total			$574,400
Start-up total			**$1,634,380**

Same calulation based on Unix server with Thin client at work and Linux Desktop at home.	**$1,134,415**

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Linux Oriented TCO (10/2001) - 2

- First advantage of Linux/Thin clients :
  - Computer is resistant to attacks an can be considered like phones
  - Windows may require much more maintenance and supervision
- Staffing Number
  - ½ person for Unix system
  - 4 persons for the Windows systems
- Amortisement of Unix on 5 years, Windows on 3

Cost Source	Windows Cost Estimate	UnixCost Estimate	Percent Savings
Initial Capital Cost	$1,634,380	$1,134,415	31%
Support Staff	4 x $45,000 x 5 years $900,000	1 x $65,000 x 5 $325,000	64%
software refresh	$1,864,008		100%
Parent total	$1,341,209	$507,600	62%
School total	$3,057,179	$951,815	69%
Total Estimate	**$4,398,388**	**$1,459,415**	67%

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Linux Oriented TCO (10/2001) - 3

Cost Source	Windows Cost Estimate	Unix Cost Estimate	Percent Savings with Unix
Initial capital cost	$11,219,808	$9,965,000	12%
Support Staff	$37,125,000 $2,100,000	$14,625,000	63%
24 month software refresh	$7,170,000		100%
36-month hardware refresh	$7,263,972		100%
Total Estimate	**$64,878,780**	**$24,590,000**	**62%**

Element to put in a TCO

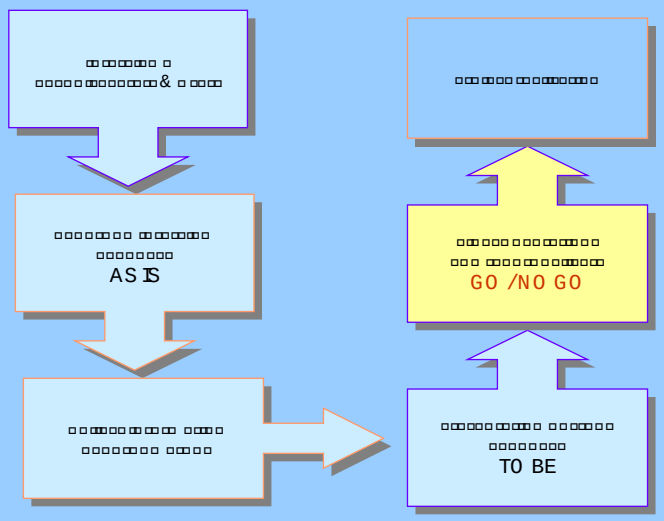
- Direct costs (relatively low)
  - Hardware (live cycle?)
  - Software licences (live cycle?)
  - Maintenance (you can have maintenance for Linux)
- Central Infrastructure costs
  - Servers (storage, …)
  - Network
- Human costs – Everybody agrees that's the most important, nobody agrees on the values!
  - Depends on the context
  - A lot of hidden costs

ROI

- All the investments must be justified by a ROI
- Never calculate a ROI compared to an other solutions : Different solutions and different costs and different returns
- ROI Elements
  - Start from the TCO (maintenance costs are in it)
  - Be careful with the hidden costs
  - See the returns in term of gain of productivity
  - Don't forget the "lost if not done"

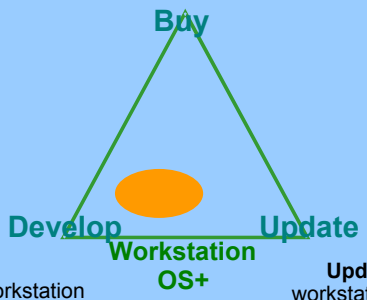
Project approach

Approach for a feasibility study



Workstation positioning

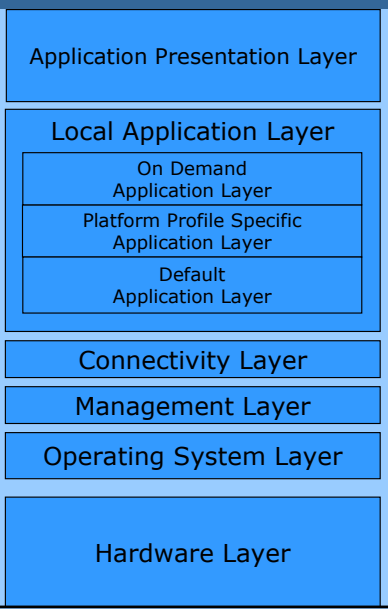
Buy and adapt an existing solution. This means: to take over a solution developed for another customer or a general-purpose solution, and to install it "as is". The buy may be "buy" but may also be "acquire from a partner".



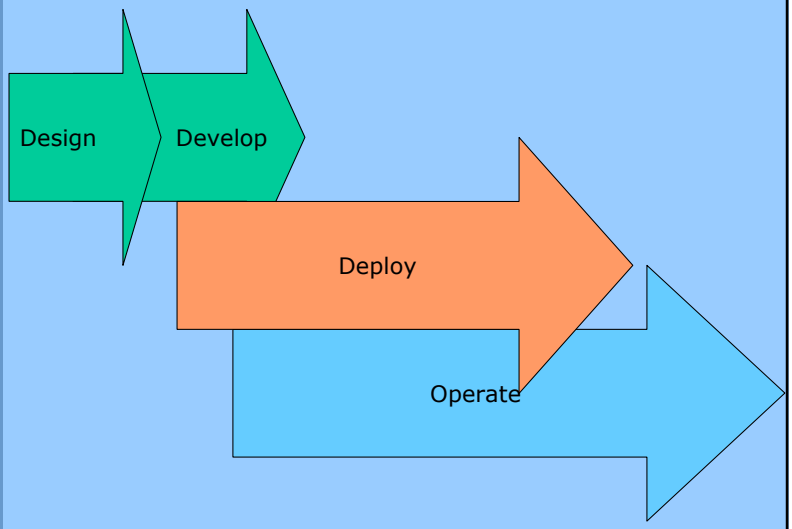
Develop a new workstation "from scratch". The development must be done taking into account mandatory elements such as applications and a security model

Update the existing workstation to the new OS. This axis comes from the situation where we totally ignore what exists currently to full transposition and testing of the current platform

What must be on a workstation



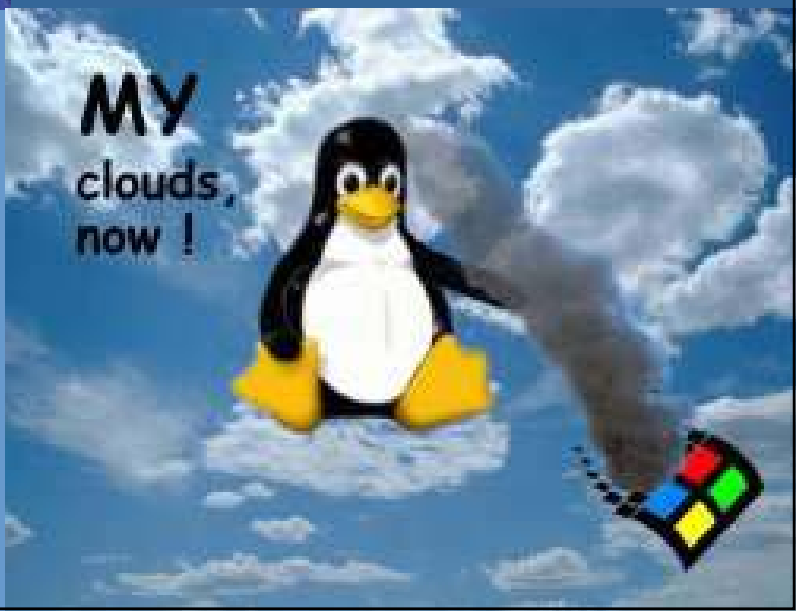
Deployment phases



Conclusions

Linux Workstations

- Can be used but not for every things
- A feasibility study must be done
  - Technical feasibility
  - Human aspects
  - TCO & ROI
- Project approach
- Don’t forget hybrid solutions


MY
clouds,
now !