

The SPARC Console System



Console System

Architectures

Four different architectures have been analyzed for the SPARC console system:

- ✓ thin-clients (ex. Dafne)
- ✓ workstations (ex. TTF)
- ✓ OpenMosix based PCs Cluster (ex. PC farms)
- ✓ Linux Terminal Server Project

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Architectures: thin-clients

- ✓ in use at Dafne (SunRay1: 100MHz-8MB)
- ✓ good scalability
- ✓ ease of management
 - ✓ centralized accounting
 - ✓ centralized software upgrade
- ✓ server is a single point of failure
- ✓ HW and SW are both proprietary
- ✓ expensive

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Architectures: workstations

- ✓ most common in accelerator Control Systems (TTF)
- ✓ distributed system
- ✓ gives the capability to tune the single WS in order to accomplish a specific task
- ✓ complexity of management
 - ✓ auxiliary centralized accounting
 - ✓ auxiliary software upgrading system

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Architectures: OpenMosix Cluster

Other more exotic configurations can be taken in account; the more attractive one is a cluster of PCs based on Mosix/OpenMosix:

- ✓ distributed system based on standard PCs
- ✓ computing power increases as PCs number raise
- ✓ very high load over the cluster network (intrinsic)
- ✓ our tests demonstrated the impossibility to migrate SHM and threaded bounded processes
- ✓ lots of kernel crashes demonstrated that OM is actually immature for our needs

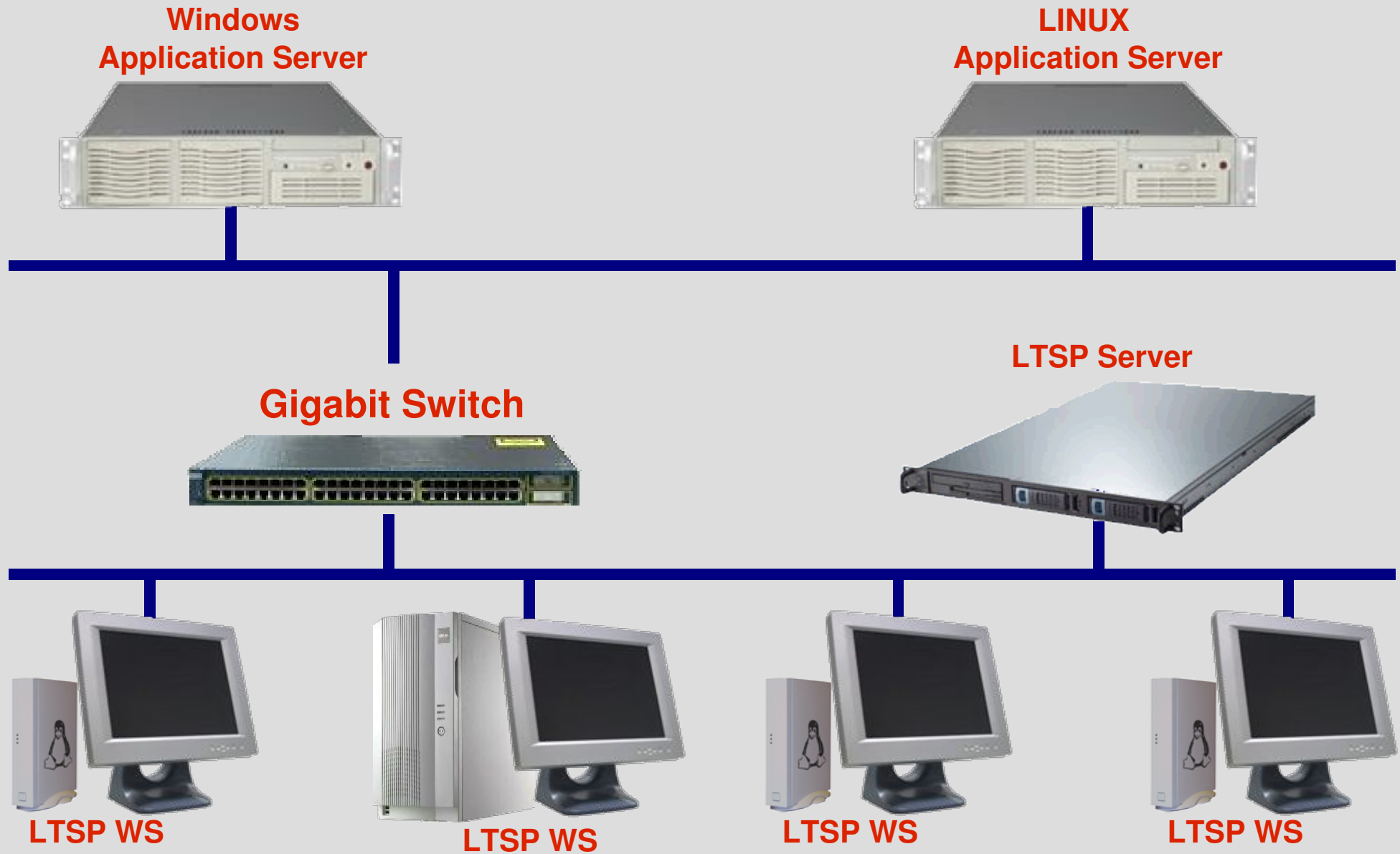
Console System

Architectures: LTSP

- ✓ OSS, very good support from developers
- ✓ centralized accounting and updating
- ✓ highly customizable
 - ✓ can act simultaneously as thin-client and/or WS
 - ✓ possibility of using OM in future, if it will be stable
 - ✓ a number of heterogeneous HW can be used
- ✓ very low cost hardware, free SW
- ✓ no moving parts configurations are possible
 - ✓ low consumes and noise
 - ✓ high durability

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LTSP: working logical scheme



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LTSP: working principles

- ✓ LTSP server has to offer some services:
 - ✓ DHCP server (dynamic IP assignment)
 - ✓ TFTP server (gives bootstrap kernel to clients)
 - ✓ NFS server (exports terminals root filesystem)
 - ✓ XDMCP server (the display manager, optional)
 - ✓ NIS server (authentication, optional)
- ✓ LTSP terminals bootstrap:
 - ✓ boots through PXE or etherboot
 - ✓ gets an IP address through a DHCP request
 - ✓ gets its Linux kernel through TFTP
 - ✓ mounts its filesystem through NFS
 - ✓ gives the user a session (a “SCREEN”)

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LTSP: SCREENs

LTSP offers a number of built-in scripts in order to have different types of user sessions, they are referred as “SCREEN scripts”; the user can switch among them through simple shortcut keys:

- ✓ local console (on the terminal itself)
- ✓ X terminal on a remote display manager
- ✓ rdesktop on a Windows remote desktop server
- ✓ a telnet/ssh session on a remote machine

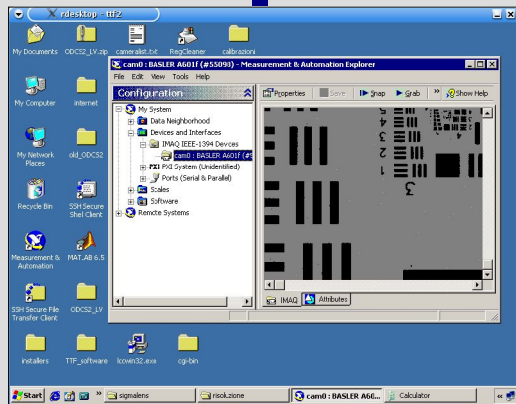
Custom scripts can easily be developed

- ✓ a labview program
- ✓ a mozilla client giving access to the e-LogBook

Console System

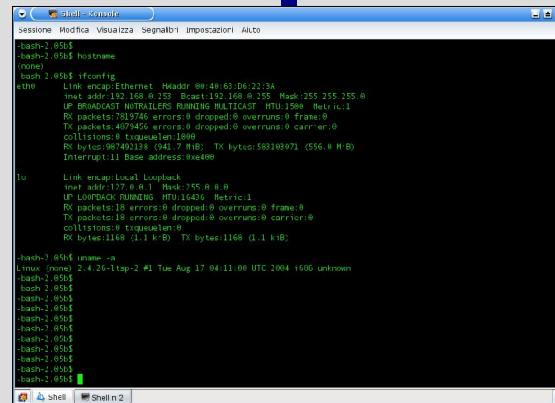
LTSP: SCREENs scheme

Windows Application Server



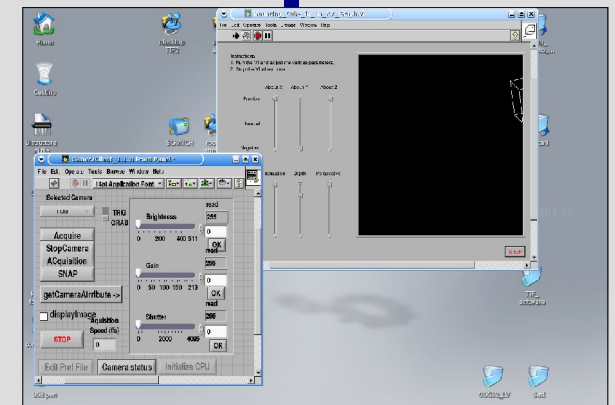
SCREEN_1

External SSH Server



SCREEN_2

LINUX Application Server



SCREEN_3

LTSP WS



Console System

LTSP: LOCAL_APPS

Applications can be run locally on the terminal itself. This is accomplished through ssh sessions from the LTSP server to the terminal.

- ✓ a terminal can be tuned to be powerful enough to run a particular application, not bearing down on the server
- ✓ the system gets very high scalability
- ✓ a terminal can be a WS and/or a thin-client as needed

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e-LogBook

An e-LogBook, based on the TTF experience, has been developed and is operational on a temporary server (<http://elog.roma2.infn.it/MYelog/index.jsp>)

- ✓ readable and editable from remote
- ✓ based on OSS technologies: apache, JSP, HTML
- ✓ search engine
- ✓ files uploads
- ✓ attached files live preview
- ✓ project documents repository
- ✓ works both on Solaris and Linux servers

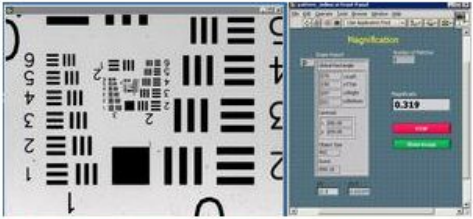
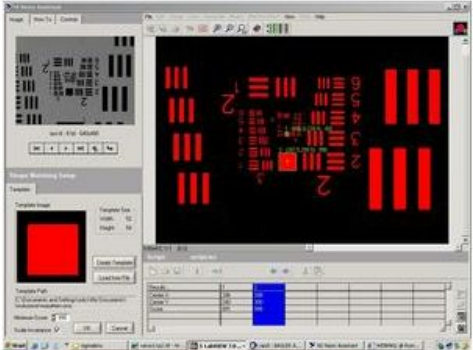
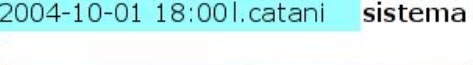
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e-LogBook: snapshots

The screenshot shows a web browser window titled "SPARC e-Logbook - Konqueror". The address bar displays "http://elog.roma2.infn.it/MYelog/index.jsp". The browser's menu bar includes "Indirizzo", "Modifica", "Visualizza", "Vai", "Segnalibri", "Strumenti", "Impostazioni", "Finestra", and "Aiuto". The toolbar contains various navigation and editing icons. Below the toolbar, a navigation bar features icons and labels for "Locali", "OS", "Security", "Sistemistica", "Programmazione", "Hacking", "LAVORO", and "HW".

The main content area displays the "SPARC eLogBook" logo at the top left. A sidebar on the left shows a tree view of dates from 2004 to 2010, with "2004" selected. Below the sidebar, there are links for "View Current", "Logbook Search", "Logbook Help", "Your Feedback", and "Links".

The main content area lists several log entries:

- 2004-10-01 18:33A. Cianchi** On line magnification
New tool for the online magnification measure developed.
Large range of pattern recognition.

- 2004-10-01 18:03l.catani** finestra per la procedura di calibrazione

- 2004-10-01 18:00l.catani** sistema di calibrazione dell'obiettivo MACRO (foto 2)


At the bottom left, the printer is identified as "templatelog" and the logo "DOOCs eLogBook" is displayed.