



CERN Windows 2000 Migration Wrap-Up

HEPiX-HEPNT
Fermilab, October 2002

Outline

- Key design choices
- Mass Migration
- Difficulties
- Current Status
- Next steps
- Conclusion

Design Choices

Key Design choices

- Single Domain
 - In place upgrade CERN domain to cern.ch
 - Using Unix Bind DNS's
 - Done in July 2000
 - Computer creation immediately stopped to work
 - New user registration was half broken for 15 days
 - Web redirection immediately stopped to work
- Migrating Servers from NetWare/NT4 first
 - Allowed for Active Directory in Native mode
 - Very difficult and time consuming Netware migration
 - Mac namespace migration problematic
 - Mac services using > 140 MB system memory
 - Eventually splitted the home directories given he little use
- Development of Web Based Management tools
 - To reduce support costs
 - Integrated with corporate DB's (HR, Network, etc...)
 - Allows for privileged operations delegated to the users

Key Design choices (II)

- Home directories
 - My documents redirection to 8 servers or more
 - Dfs name space (\\cern.ch\dfs\Users\<letter>\<username>)
 - Offline folders enabled
 - But not enforced
- SMS for desktop management
 - All Hotfixes, SP's and tweaks deployed thru SMS
 - NOT for application management
- Application management thru Group Policies
 - Combined with Security Groups for flexibility
 - E.g. GP Deny Office 2000 vs. GP Apply Office XP
 - Solves the controls PC problem
 - Only Office, NAV, WinZIP, PrintPackage, RealPlayer and CERNWak assigned to machine
- Application installation thru MSI
 - When available or packaged when needed
 - Using ZAP files for the others (but still published thru GP's)
- Rationalization of Applications negotiated with Users and Management
 - Allowed for a comprehensive documented support model
 - E.g. Adobe Photoshop discarded in favor of Corel PhotoPaint
- Reformat hard disk
 - Not a smooth update/migration
 - Clean base, solves multiple ipartition problems introduced with Windows 95

Three Installation Methods

- With standard Floppy/ Network:
 - Works for all supported platforms.
 - To be started in parallel on several PCs when possible
- With CERN-made CD's – when possible:
 - Based on **SYSPREP** and cloning software
 - Specific to each type of motherboards
 - Much Faster (90 mn -> 20 mn) - Allows to give more time to user.
 - 3 generations of CDs were produced for 6 motherboards.
 - Installations performed one at a time.
 - Well adapted to single installations, as well as "bulk" migrations (*no network/server contention*).
- With CERN-made Disk Images for new machines
 - Now standard method for any new PC delivered
 - Image shipped to supplier
 - Installation completed in less than 10 mn
 - Sensitive to hardware changes
- For all the other cases ... unsupported
 - Although Windows 2000 boot disks and/or Windows 2000 CD's have been used

Mass Migration

Mass Migration

- Decision in 1Q2000 to limit the migration duration for 18 months
- Decision in 1Q2001 to split system teams and deployment teams
 - Focus on coordination with user groups
 - Focus on optimizing installation speed and quality
 - Decided in 2Q2002 to outsource the routine work to an external company
 - CERN requires competitive tendering ...
 - Globally positive but lead to extra overhead and some bad experiences
 - Some clashes with the existing outsourced desktop support contract

Migrating Users

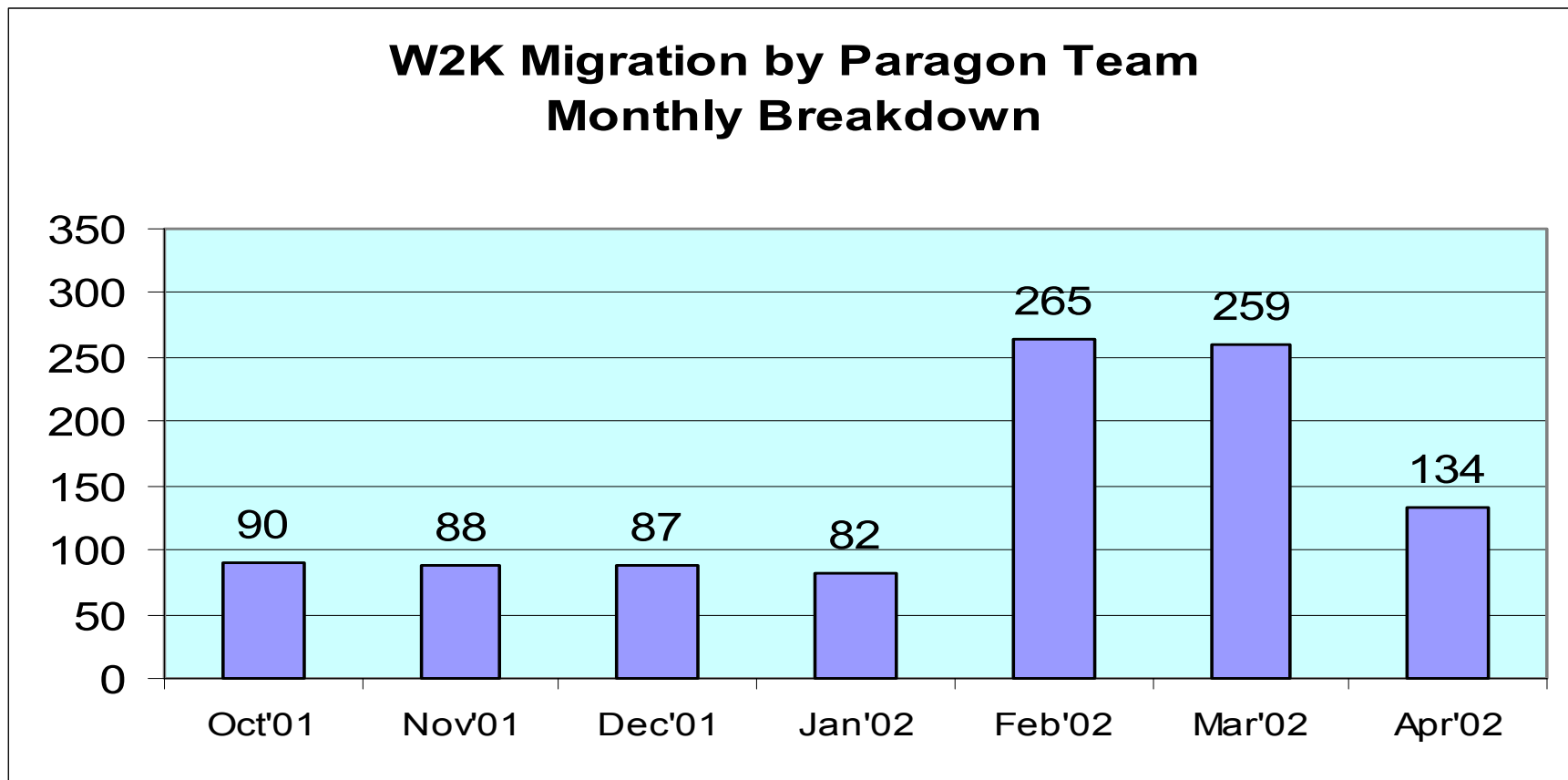
- Not only Installing an Operating System:
 - **User's basic environment** (**IE** and **Outlook** settings)
 - Users need a short hand-on session (Outlook) at the end of the migration.
- Several Training Initiatives
 - Seminar campaign in Divisions
 - Sessions for local administrators
 - New W2K courses organized with Technical Training.
- Pilot migrations
 - Organized in Spring 2001
- Time spent per User:
 - 2.5 h with Floppy/network (*standard method*)
 - 1.5 h with CERN-made Image CDs (*where possible*)
 - **=> 2 h per user on average**
- Exhaustive Migration Procedure and related doc. published at:
<http://cern.ch/W2Kmtf/Docs>

End User Migration Difficulties

- Many local files (on C:), including local Email folders !
- Forgotten Mail passwords...
- Obsolete Hardware & LHC Budget Reallocation Crisis
 - Very slow PCs take longer to migrate (133 MHz, 200 MHz)
 - Caused Paragon to do overtime, controlled by reducing the number of daily migrations.
- Delayed Application availability (e.g. MP5)
- Reaching common agreement within divisions/groups takes time.
- Existing Diversity...
 - Non-standard hardware,
 - Non-standard configurations (Dual-boot, etc...)
 - Diversity comes progressively, but has a cost during mass migrations.

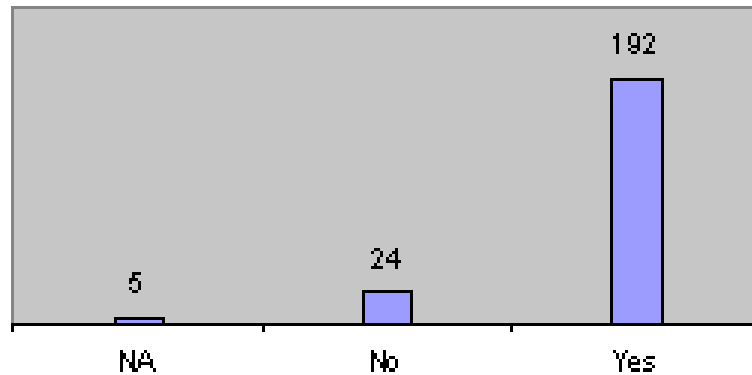
Paragon Statistics

Over 7 months: **1005** PCs were migrated by Paragon

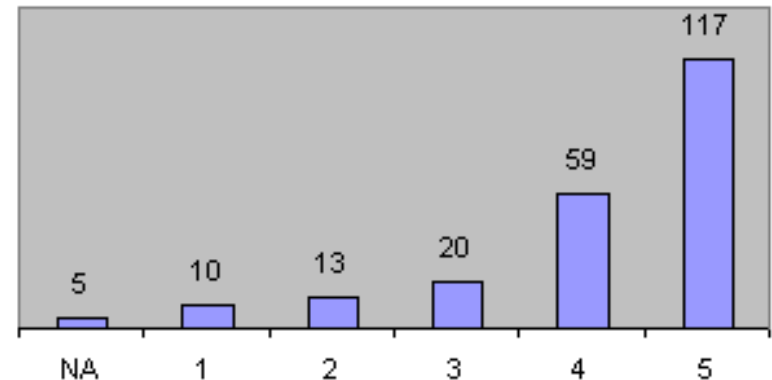


User Survey (I) *(234 answers - <http://cern.ch/w2kmtf/Docs>)*

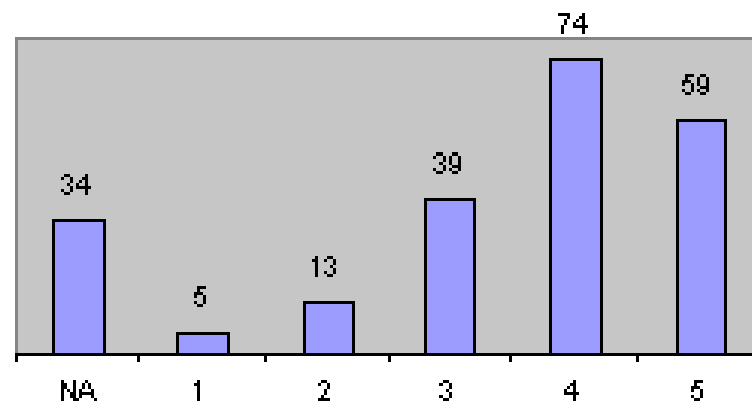
Did you receive the needed help in preparing the migration?



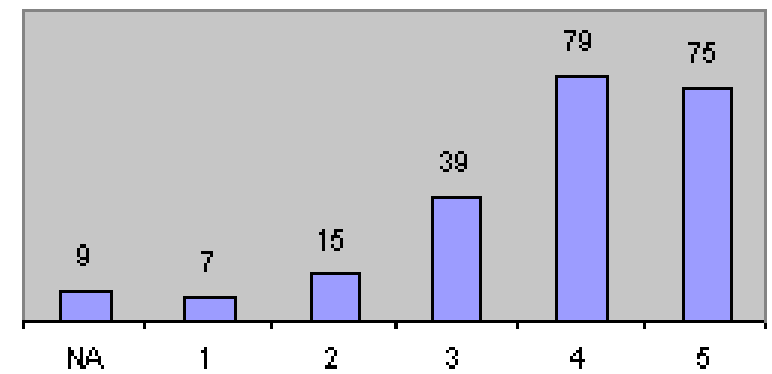
How smooth went the migration?



yes, how clear and useful were the notices?



How good was the information on the migration plan?



Some Difficulties

Infrastructure problems

- Macintosh support
 - Macintosh Services are not solid
 - Could use SMB, but no Mac dfs client
 - Logical name space broken
- NFS support
- Last Login date
 - When using ancillary services
- NTFS Static inheritance
 - Leading users to make mistakes
- Legacy data
 - Not integrated in the dfs name space
- Application repository
 - Too large for backup to complete
 - Splitted on different servers, but replication sometimes problematic

Application and desktop management problems

- SMS software metering does not scale
 - But needed for our license agreements
- Office redeployment
 - Redeployed at every service pack or hotfix
 - Take 30 minutes
- Roaming profiles
 - Slows down considerably logins
 - Aggravated by large Outlook .pst files
 - Leaves undeletable prfxx.tmp files
- Laptops
 - Standby/Hibernate problems
 - Causing a blue or black screen (not the BSOD)
 - Probably cause by graphics drivers
 - Unable to save in My Documents

Application problems

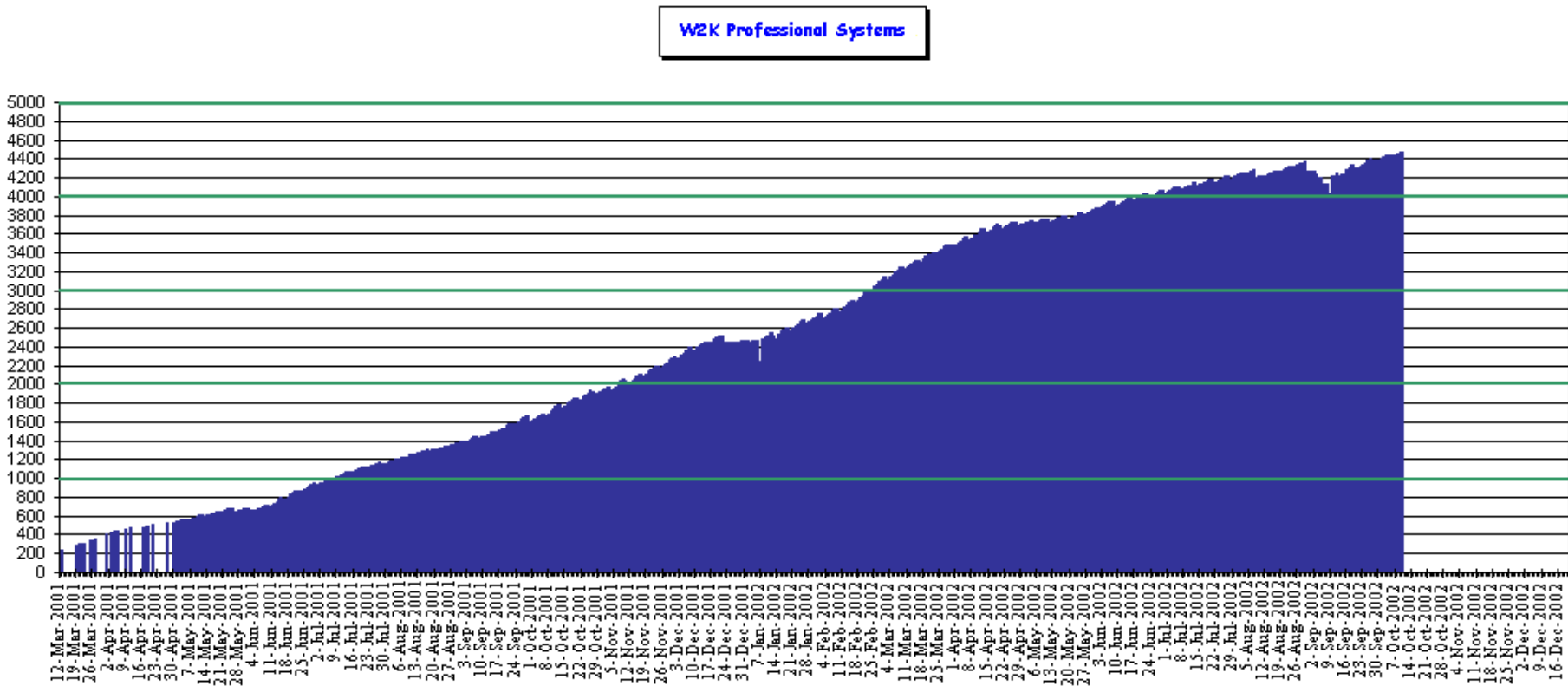
- Outlook pst files
 - Even worse when in the roaming profile
- Norton AntiVirus
 - Resources used
 - Takes 45 minutes to complete
 - Schedule not flexible enough
- Applications not using MSI
 - E.g. Oracle which required a parallel infrastructure
- AFS client
 - Installation not automated and complicated

Microsoft related problems

- Way hotfixes and Service Packs are deployed
 - Difficult to test Office SP's without deploying to everybody
 - They do not seem to use their own technologies (or the teams do not talk to each other)
 - Seems to be targeted at the consumer
- Rapid changes
 - E.g. Office 2000 will be n-2 in 2Q2003
- Licensing
 - Difficult sometimes to be able to pay their licenses!

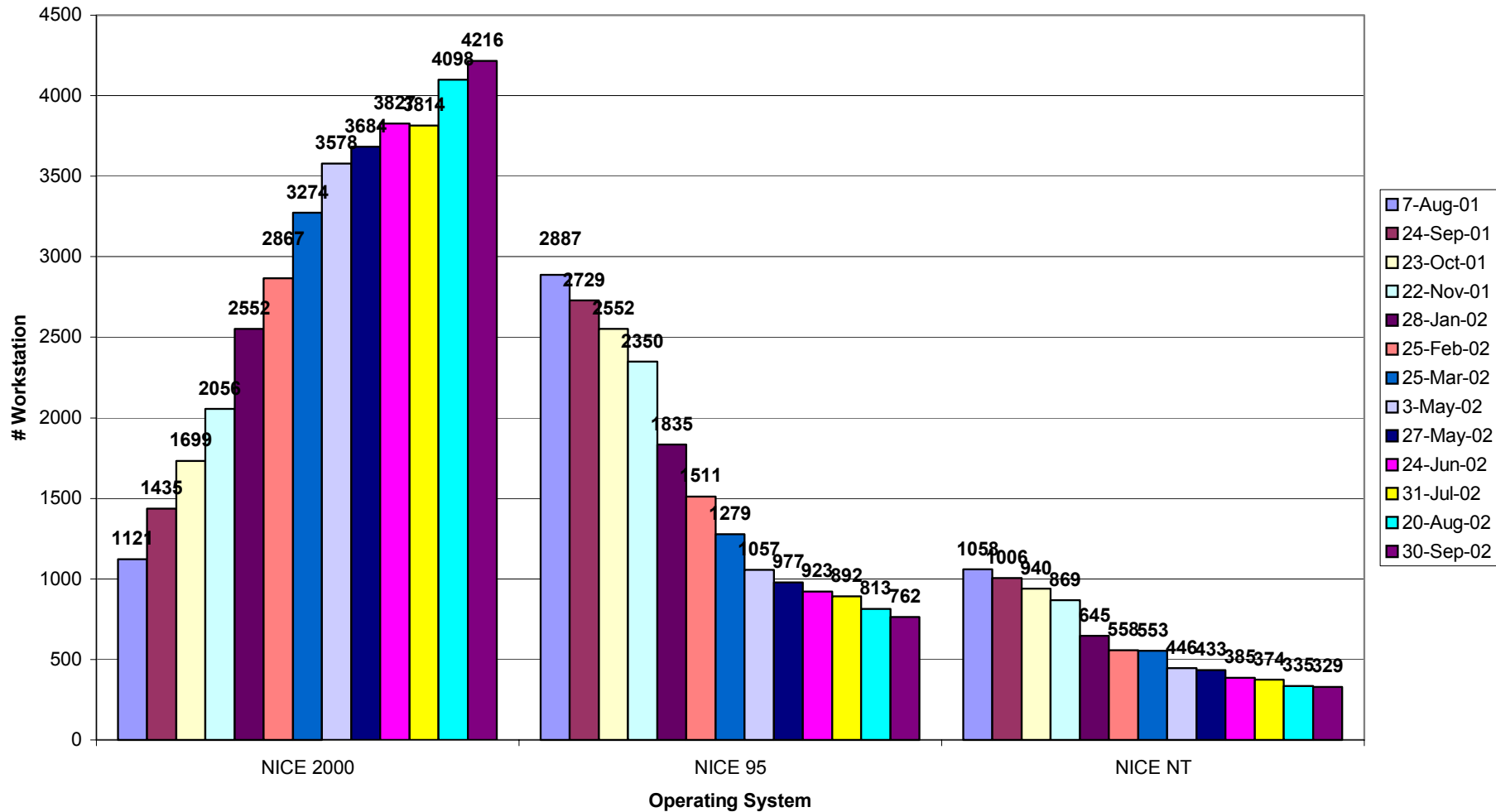
Current Status

Windows 2000 Evolution

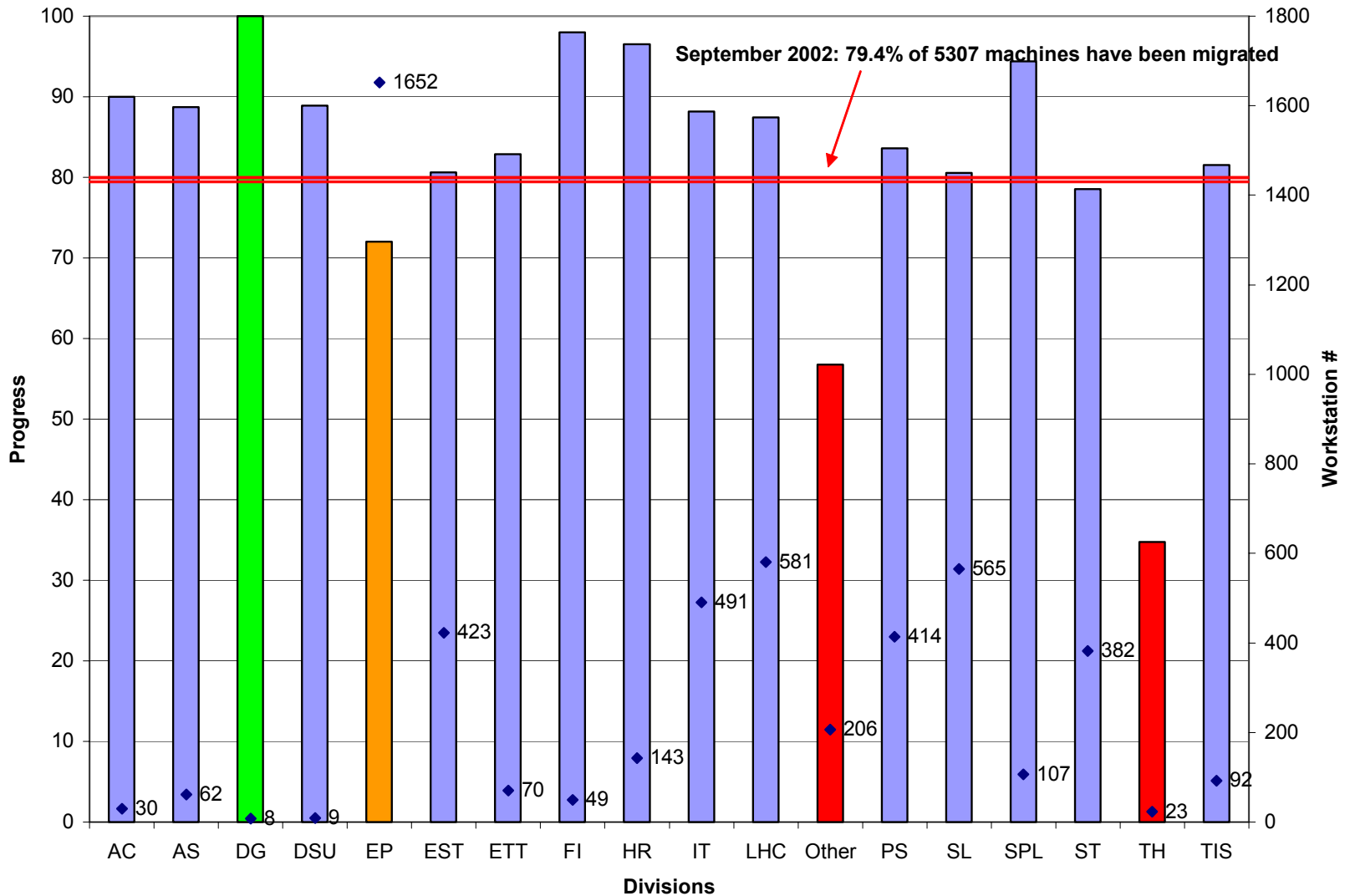


4446 W2k Workstations @ 6:00:01 PM - Sunday, October 20, 2002

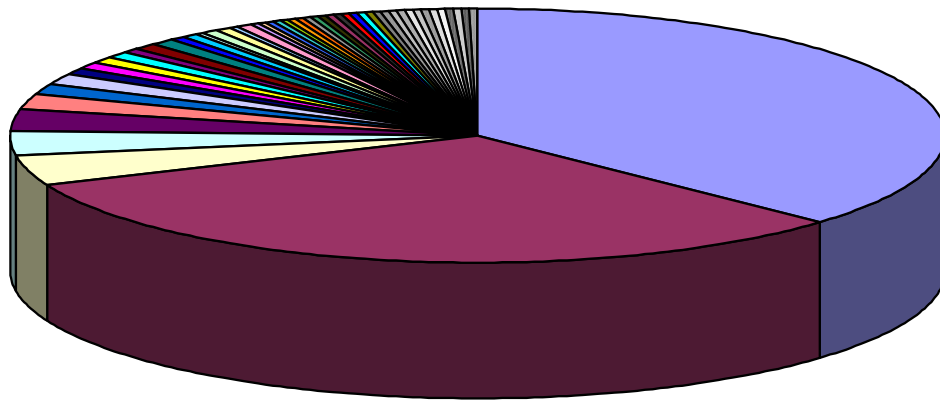
Evolution



Divisions Progress



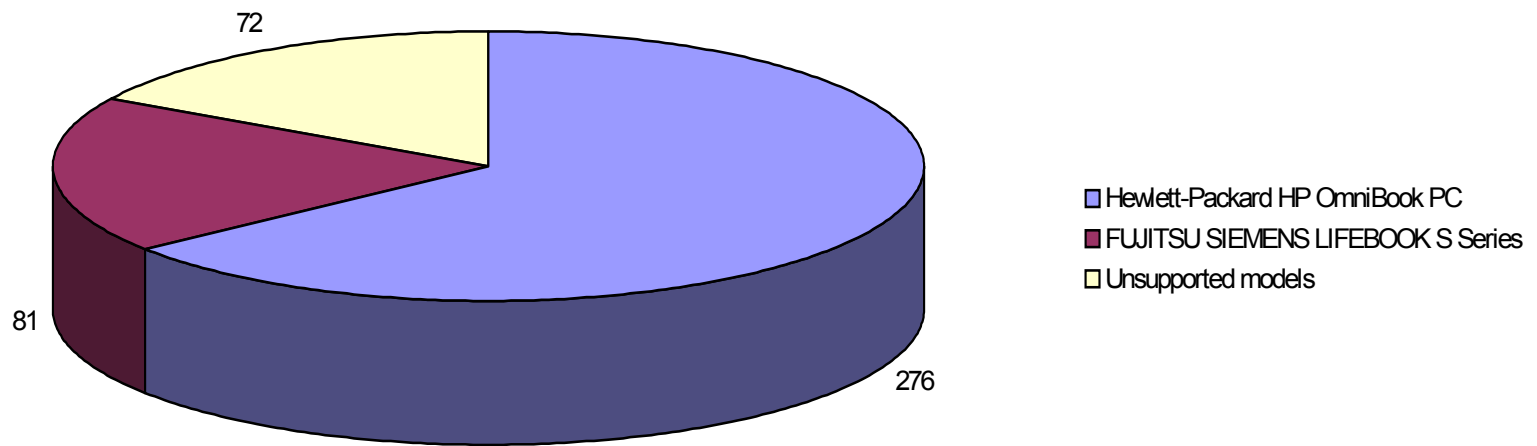
Windows 2000 Graphic Card Types



- ATI Technologies Inc. 3D RAGE PRO AGP 2X
- Rage Fury Pro/Xpert 2000 Pro (English)
- ATI Technologies Inc. RAGE P/M Mobility AGP 2X
- NVIDIA RIVA TNT2 Model 64/Model 64 Pro
- ATI Technologies Inc. 3D RAGE II PCI
- ATI RAGE MOBILITY-M PCI (English)
- ATI RAGE MOBILITY-M AGP (English)
- Rage Fury Pro/Xpert 2000 Pro
- ATI Technologies Inc. 3D RAGE II+ PCI
- Cirrus Logic 5446 Compatible Graphics Adapter
- ATI Technologies Inc. mach64 GX PCI
- NeoMagic MagicGraph128ZV/ZV+/XD driver
- NeoMagic MagicGraph256AV driver
- 3D Prophet II GTS Pro
- ATI Technologies Inc. ATI-264VT2 PCI
- ATI Technologies Inc. 3D RAGE IIC AGP
- ATI Technologies Inc. 3D RAGE PRO PCI

159 Graphic Cards Types

Windows 2000 Portable Computer Types



44 Portable Computers Types
(429 Portables in total)

Next Steps

- Windows XP
 - Is compatible with our infrastructure
 - ~100 PCs are currently running NICE XP prototype
 - Really a must for laptops
 - Not supported yet
 - Need to develop a SMS upgrade procedure
- Office XP (*or Office 11?*)
 - We will propose to deploy it in the coming months
 - to anticipate Microsoft “version n-1” support policy.
- Long term Strategy: *Avoid O/S migrations*
 - Have new PCs delivered with Windows installed by the manufacturer
 - New PCs join CERN domain to get CERN environment and applications
 - Old PCs get progressively replaced over 3 (5) years.
- Evaluate SMS “Topaz”
 - Could solve application usage monitoring problems

Summary

- W2K Infrastructure
 - Apart serving Windows desktop and applications, is now becoming the foundation for:
 - CERN Web Services
 - Exchange 2K Mail pilot
 - ACB & VPN prototype
 - E-groups (role based management)
 - Authentication Service
 - Good Manageability
 - Efficiency in operating the service
 - Various management tools
 - “3rd level Staff / Desktop” ratio very low (~6/5000)
- Real “Mass” Migration to Windows 2000 is complete
 - Remaining NICE 95/NT systems will be migrated using traditional channels
 - Local support
 - Progressive PC replacement
- But ~1000 PC’s remains to be migrated ... or switched off