

# System Management in a Windows based Control Environment

Christian Caro  
DESY

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The DESY WindowsNT Group

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- PCaPAC Conference from 9.10.2000 – 12.10.2000 in Hamburg
- Accelerator Controls

	Consolen	Device Server
■ Hera:	NT 4	MSDOS, Linux, NT, ...
■ Petra:	Win3.X+Novell	Win3.X
■ DESY 2+3:	„	„
■ Doris:	„	„
■ Linac 2+3:	„	„
■ TTF:	Solaris	Solaris

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## Why is software deployment an issue in a control environment ?

- Number of PCs is > 50
- fast control software life cycle
- management tasks
  - OS setup / device driver installation
  - install applications
  - manage applications (preconfigure, make changes, install bug fixes)
  - system management (change local configuration like regional settings, new WINS server, )
- reliability



## Technical Procedure on NT

- Installing an application means
  - copy files, replace file even if they are in use
  - dll versioning
  - modify "ini" files instead of replacing them
  - Registry
  - NTFS security (on files, registry)
- System management tasks
  - local policy, user rights, local account management, auditing
- (Distinguish between user and workstation part)



## Classes of Usage

- Control room
  - front-end PCs for operating, running control software
- Device servers
  - only one special application is running
- Developer PCs
  - Standard Office PCs with development environment



## Characteristics of Control PCs

- Used by many people → prevent changes
- Software updates
  - update almost every day !!!
- Updates must run asynchronously
- Apply software and updates to all PCs
- If PC fails or makes trouble, just shut it down
- Additional standard software is desired



## Characteristics of Device Servers

- Not used interactively
- Software updates less frequently
- Need to define exactly when to update (not asynchronously)
- Targeting updates to single PCs or group of PCs
- If server fails, it needs to be replaced fast
  - How to install device additional device drivers ?
- No standard software needed



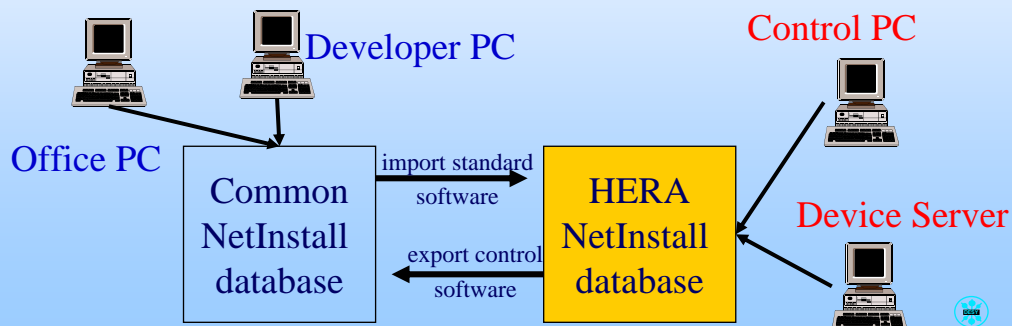
## Implementation at DESY

- NetInstall
  - system management / application management tool from InstallShield (package, preconfigure, target, deploy applications)
- Application support classification in NT Domain
  - Red:**
    - computer in domain without NetInstall
  - Yellow:**
    - use NetInstall support, but user is free to install additional software
  - Green:**
    - use NetInstall support, but the local security policy prevents user from installing additional software or changing any dlls



## NetInstall Databases

- Idea: use the same tool for HERA control software
  - share knowledge
  - export control software to **ALL** office PCs at DESY
  - import standard software from central application support



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## Control PCs for HERA

- About 50 Controls PCs are located in
  - control room, table PCs ("yellow"), experimental halls, ...
- Green PCs in common domain
- Only a few PCs have additional hardware
  - frame grabber, monitor splitter, ...
- All PCs get the same applications
- Additional standard software
  - VB5, VB6, MSOffice97, Browser, ...
- Everything installed locally
- Autologin with domain account

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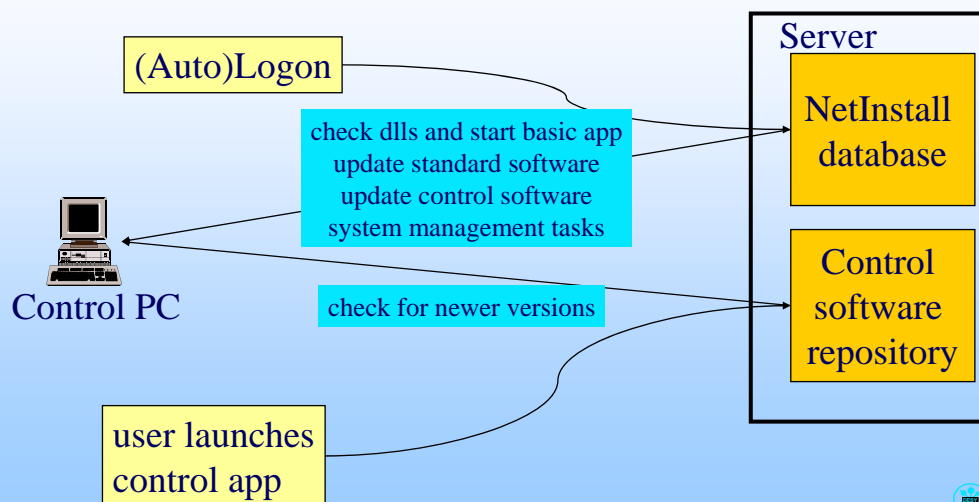
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# Software Updates on a Control PC

- 1. Updates with NetInstall at logon time
  - setup of infrastructure, standard software, control applications, links
    - ▢ scripts are usually executed once, but can be reapplied on demand
  - checks of dlls and other important files, starting the communication layer
    - ▢ every logon
- 2. Check control applications at launch time
  - check for newer versions very frequently



# Update Procedure



## Device servers

- Still under development



## Effort to Guarantee Stability

- The problem: PCs belong to common DESY domain (DESYNT)
  - maintained by central services
- The solution:
  - Everything works with local accounts as well
  - Local mode switch installed on every PC
    - ▣ --> login with local account, disconnect network shares and work without updates
  - A BDC and Wins server is located in the local subnet area
  - Two NetInstall servers, updated with replication



## Problems

- A developer PC is not well-defined and well-managed
  - A Yellow PC where user can install additional software
  - --> control applications can be linked to newer dlls than deployed in control room
- PCs are not Green enough
  - even almost everything is restricted on a Green PC, there are still some things free to be configured (keyboard layout, regional settings)
- Software and system management is a complex task



## Conclusion

- Software and system management is important !!!!
  - Device PCs have different needs than Control PCs
  - Extra software management tool is needed (DESY: NetInstall)
- Green PC is important
- Extra NetInstall database used for control system, running in common domain
  - connected with central NetInstall database to export control software to Office PCs

