



NICOS Manager for Nightly Builds

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Purpose of NICOS

- Nightly COntrol System
- Automate software builds
- Test newly built software
- Make results immediately available to developers
- Facilitate multi-person, multi-platform development of code
- Ensure maximum stability of build processes



Builds Automation

- Builds on UNIX-like platforms
- Works with popular release tools (CMT, SCRAM, SRT)
- Sources are retrieved from CVS repository (multiple options)
- Allows optional number of releases in a cycle



Software Testing

- Unit tests supported by release tools
 - Success is determined by the return value of a test
- Integrated tests defined at NICOS configuration. Success criteria:
 - Critical patterns in the output
 - Comparison of histograms (to be developed)



Informing Developers

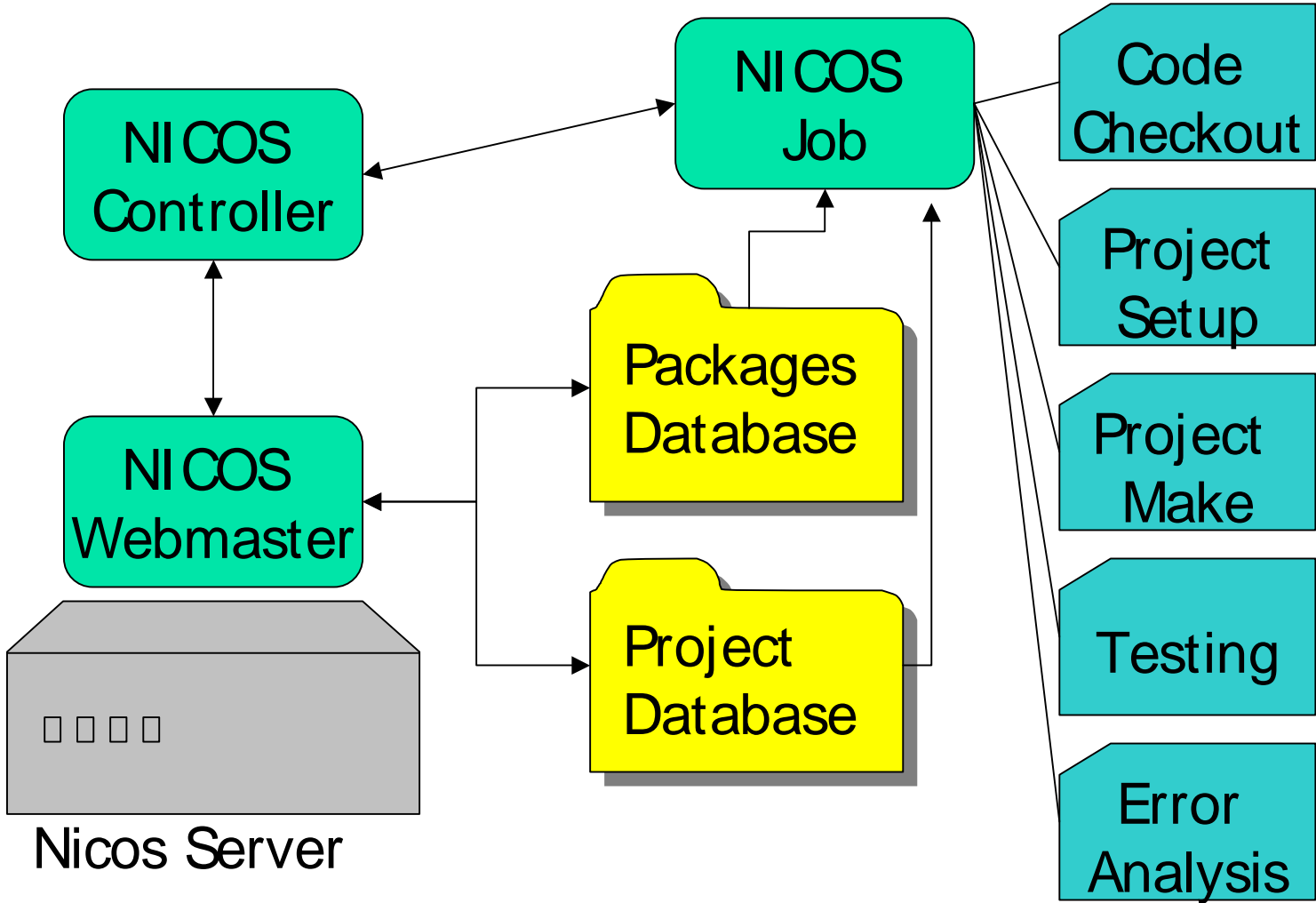
- NI COS dynamic web pages
 - Detailed status of builds is displayed on the project web page
 - Build summary web pages display results for individual packages and integrated tests
- Responsible developers are notified about problems via e-mail



Stability of builds

- Build process is divided into steps
 - Current step is displayed on the project web page
 - If any step fails, NICOSS Controller tries to restart from the point of failure
- Time limits are imposed for execution of steps
 - NICOSS job can be automatically killed if runs overtime

NICOS Organization





NI COS Project Database

- XML-like file with configuration parameters
- Each build step is associated with Markup tag
- Markup tag with parameters is followed by commands for particular step

```
<project build dir=src>  
scram b  
<error analysis>  
NICOS_MAIL="no"
```




NI COS Packages Database

- Names of packages
- Method of CVS tag selection (for each package)
 - Exact tag
 - Latest CVS tag
 - Latest CVS tag with restrictions (e.g. starting with some string)
 - External script
- Addresses of responsible developers



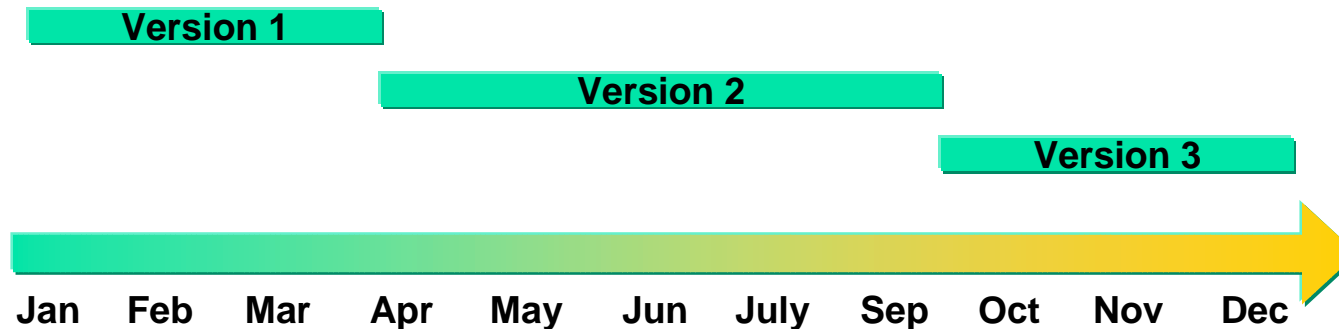
NI COS Web Server (optional)

- Based on PHP scripts
- Allows to perform actions via web
 - Change conventions for tag selections
 - Change e-mail addresses of developers
 - Add/Delete packages
 - Issue commands for Controller
 - Edit configuration file
- All actions require admin privileges



Schedule

Three phases of NI COS development



1. Basic functionalities
2. NICOS Web Master, replacing shell scripts
3. NICOS Smart Configure, consider porting to Windows



Current Status

- Version 0.1-beta is available
- Version 0.1 stable by April 2003



NI COS projects

- Atlas Nightly Builds
 - Since autumn 2001
 - 500 packages
 - Several platforms and OS
 - About hundred developers
- POOL nightly builds
 - Since February 2003

Pool nightlies web page

<http://atlas.web.cern.ch/Atlas/GROUPS/SOFTWARE/OO/dist/nightlies/poolwww>

NICOS version 0.1-beta

NICOS (Nightly Control System) project page

Project: POOL
Location: /afs/cern.ch/sw/lcg/contrib/releases/POOL
Last modified Saturday, March 08, 2003 14:24:52

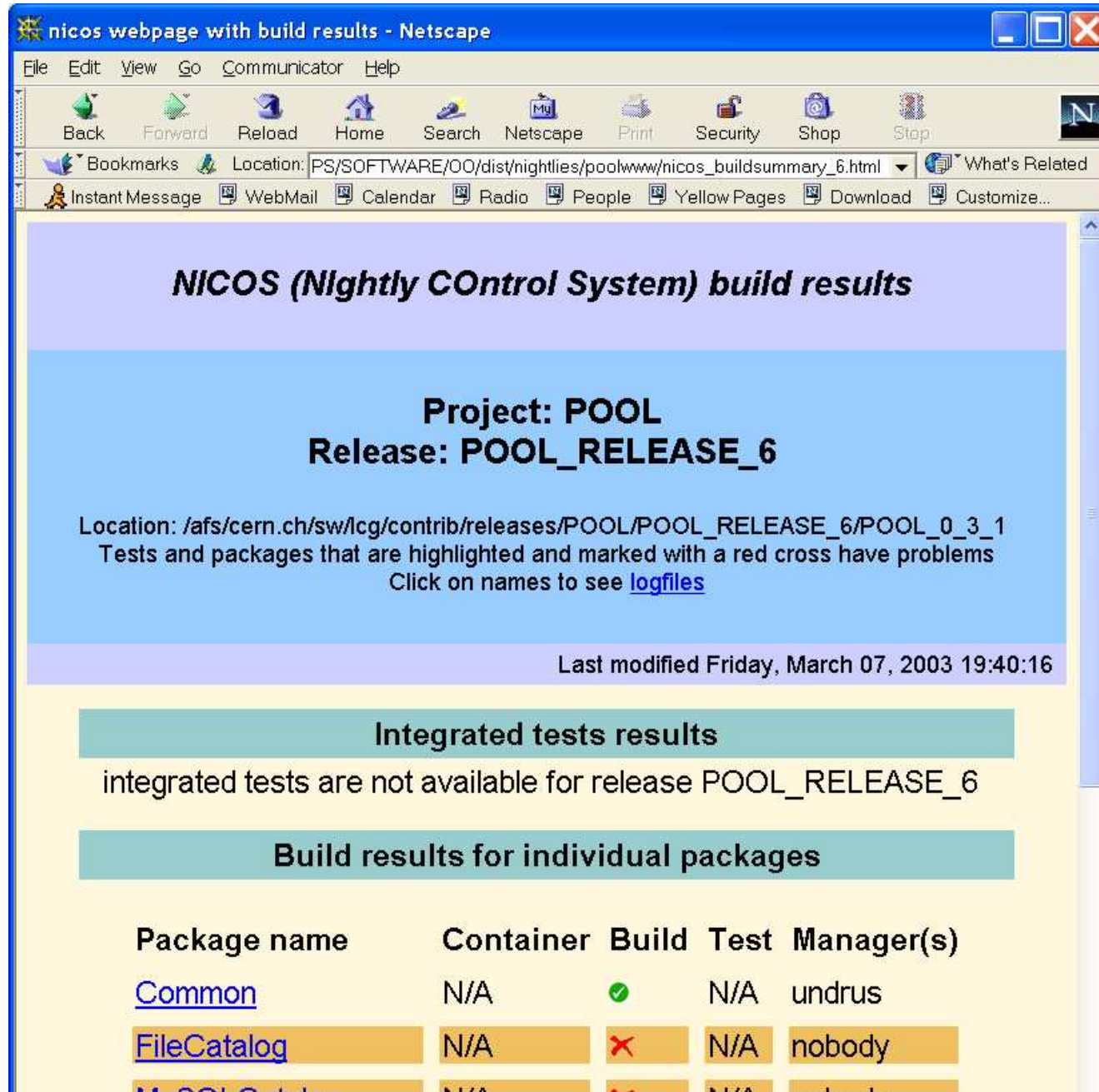
release name	status	date	list of tags
POOL_RELEASE_0	completed	03/02 01:40	list of tags
POOL_RELEASE_1	completed	03/03 01:40	list of tags
POOL_RELEASE_2	completed	03/04 01:40	list of tags
POOL_RELEASE_3	completed	03/05 01:40	list of tags
POOL_RELEASE_4	completed	03/06 01:43	list of tags
POOL_RELEASE_5	completed	03/07 01:40	list of tags
POOL_RELEASE_6	completed	03/08 01:40	list of tags

View/Edit Project Configuration



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Pool build web page



NICOS (Nightly Control System) build results

Project: POOL
Release: POOL_RELEASE_6

Location: /afs/cern.ch/sw/lcg/contrib/releases/POOL/POOL_RELEASE_6/POOL_0_3_1
Tests and packages that are highlighted and marked with a red cross have problems
Click on names to see [logfiles](#)

Last modified Friday, March 07, 2003 19:40:16

Integrated tests results
integrated tests are not available for release POOL_RELEASE_6

Build results for individual packages

Package name	Container	Build	Test	Manager(s)
Common	N/A	✓	N/A	undrus
FileCatalog	N/A	✗	N/A	nobody
MySQL Catalog	N/A	✗	N/A	nobody



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Further Information

- ATLAS nightly builds web page
atlas.web.cern.ch/Atlas/GROUPS/SOFTWARE/OO/dist/nightlies/www/nightly_builds.html
- NICOS web page
www.usatlas.bnl.gov/computing/software/nicos/index.html
- POOL nightly builds web page
atlas.web.cern.ch/Atlas/GROUPS/SOFTWARE/OO/dist/nightlies/poolwww/index.html