Status of LCG-2 porting

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Overview

- Need for porting
- Overview of porting projects
- SPACI IA64 port
- Grid-Ireland porting results
- Grid-Ireland porting infrastructure
- Conclusions

Need for porting

- **x86 clusters where SL3 cannot be installed**
  - More recent OS required to support hardware
  - Vendor support agreement requires specific OS
  - Grid resources are shared with users who require another OS
  - Existing OS already in use and sysadmins unwilling to change
  - E.g. two major Irish clusters (>1100 CPUs in total) can't use SL3
- **Support for other architectures**
  - Grid-enable compute centres with existing resources
  - User applications optimised for a particular architecture
  - MacOS/X, AIX, IRIX, Solaris, IA64, …
- **Definite need to port (at least) the WN software**
- **Question: is there a requirement to port service nodes?**

Overview of porting projects

- **CERN Openlab & SPACI**
  - Itanium port available and tested for LCG 2.6.0 (all nodes)
- **CERN/UVienna/Apple**
  - MacOS X port available (focus on UI: WMS, …)
- **Grid-Ireland**
  - WN ports available for CentOS 4.1, Suse 9.3, RedHat 7.3/9
  - Work in progress on MacOS X, Solaris, EMT64, FC4, AIX, IRIX
- **GSI (Germany)**
  - Debian port (UI and WN?)
- **IRB (Croatia)**
  - Debian: tar fixes (UI), chroot (CE+WN), converting RPMs to DEBs (ongoing); FreeBSD: tar (UI)
- **HPC2N Umea (Sweden)**
  - Porting gLite to Ubuntu (Debian)
- **EGRID (Italy)**
  - LiveCD with all service nodes, UI-only relocatable installation

SPACI & EGEE on IA64

Thanks to SPACI for this slide

SPACI Activities on IA64

- Easy LCG installation, configuration and patches on IA64
- Supported Components: all LCG components
- Documentation, Download, Support, News, etc.
- Test of SPACI's installation procedures on HP XC6000
- Test on HP-RX2600 nodes with SLC 3.0.4
- Support for Italian VOs (INFNGRID)
- User support within Italian Central Management Team for IA64 community
- Bugs Report (GridICE on IA64, etc.)

SPACI & EGEE on IA64

Thanks to SPACI for this slide

RX2600

- Automatic Procedure for installation, configuration and patches of LCG on IA64 nodes
- Supported Components:
  LCG2.4.0: CE, WN, UI, SE, MON, RB & BDII
  LCG2.6.0: CE, WN, SE, MON (the other will be soon available)
- Procedures based on bash scripts
- Web site for Automatic Procedure on IA64 (www.spaci.it/egee)
  - Info, Download, Support, News, etc..
- SPACI Repository ***(Cern mirror)***

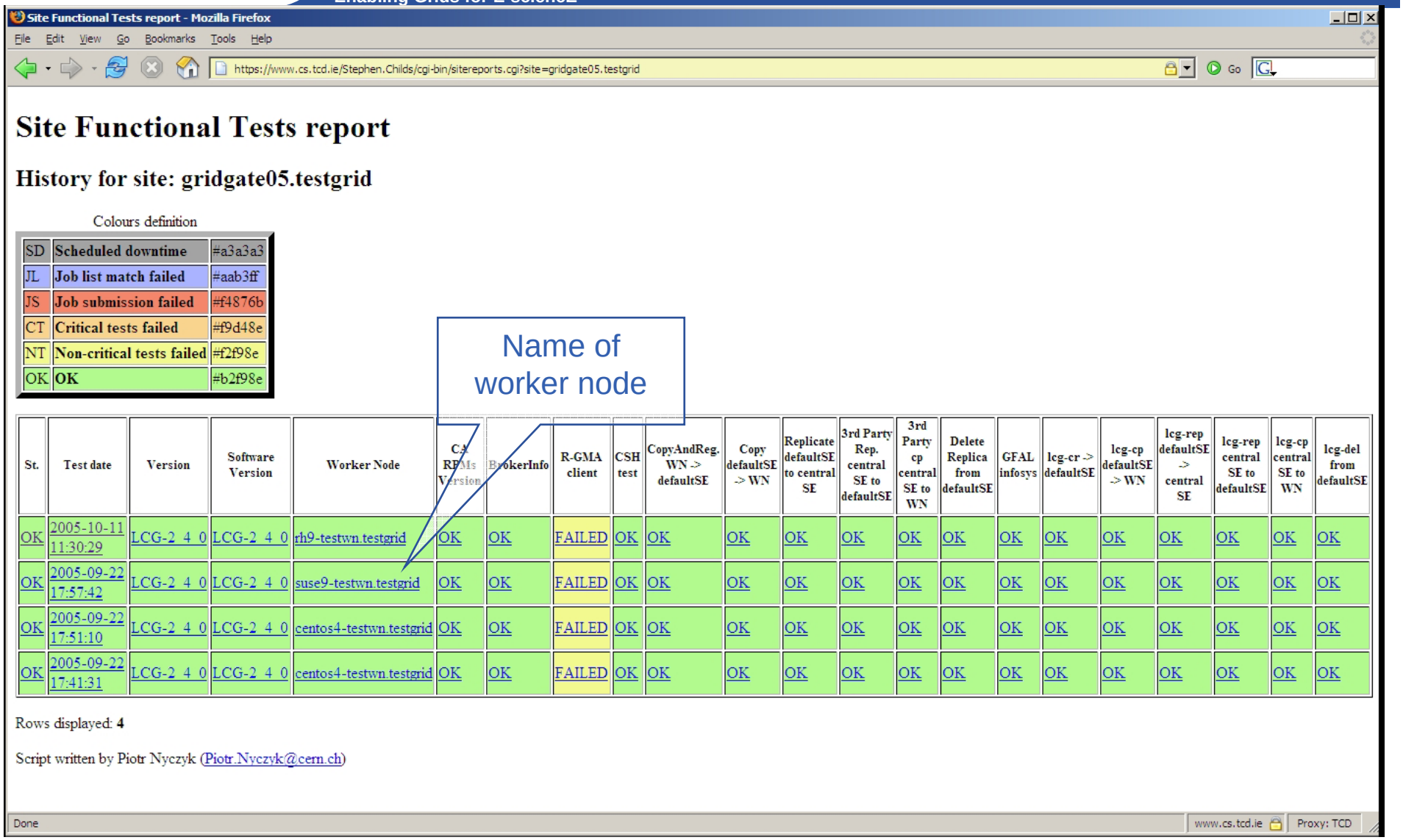
XC6000

- We are testing the automatic procedure on XC6000 (IA64 Itanium2 biprocessor nodes), considering XC System Software.

Grid-Ireland porting results

OS Type	Version	Distro	VDT	Basic	VOMS	RGMA	RM	gfal	WMS	LcFG
Redhat	7.3	apt/yum	1.2.2	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS
Redhat	9	apt/yum	1.2.2	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS
Fedora Core	2	RPMS	1.2.2	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS	N/A
Fedora Core	4	RPMS	1.2.2	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS	N/A
CentOS	4.1	apt/yum	1.2.2	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS	N/A
Suse	9.3	apt/yum	1.2.2	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS	N/A
Debian	Stable	DEBS	1.2.2	DEBS	DEBS	DEBS	DEBS	DEBS	DEBS	N/A
SL	3.0.5	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS	RPMS
IRIX	6.5.14	tarballs	1.1.14	RPMS	tarball	tarball	tarball	tarball	tarball	N/A
AIX	5.2L	tarballs	tarball	tarball	tarball	tarball	tarball	tarball	tarball	N/A
Darwin	7.7.2	tarballs	tarball	tarball	tarball	tarball	tarball	tarball	tarball	N/A
Solaris	10	tarballs	tarball	tarball	tarball	tarball	tarball	tarball	tarball	N/A

SFT results



Site Functional Tests report - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://www.cs.tcd.ie/Stephen.Childs/cgi-bin/sitereports.cgi?site=gridgate05.testgrid

Site Functional Tests report

History for site: gridgate05.testgrid

Colours definition

SD	Scheduled downtime	#a3a3a3
JL	Job list match failed	#aab3ff
JS	Job submission failed	#f4876b
CT	Critical tests failed	#f9d48e
NT	Non-critical tests failed	#f2f98e
OK	OK	#b2f98e

Name of worker node

St.	Test date	Version	Software Version	Worker Node	CA RPMs Version	BrokerInfo	R-GMA client	CSH test	CopyAndReg. WN -> defaultSE	Copy defaultSE -> WN	Replicate defaultSE to central SE	3rd Party Rep. central SE to defaultSE	3rd Party cp central SE to WN	Delete Replica from defaultSE	GFAL infosys	lcg-cr -> defaultSE	lcg-cp defaultSE -> WN	lcg-rep defaultSE -> central SE	lcg-rep central SE to defaultSE	lcg-cp central SE to WN	lcg-del from defaultSE
OK	2005-10-11 11:30:29	LCG-2_4_0	LCG-2_4_0	rh9-testwn.testgrid	OK	OK	FAILED	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
OK	2005-09-22 17:57:42	LCG-2_4_0	LCG-2_4_0	suse9-testwn.testgrid	OK	OK	FAILED	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
OK	2005-09-22 17:51:10	LCG-2_4_0	LCG-2_4_0	centos4-testwn.testgrid	OK	OK	FAILED	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
OK	2005-09-22 17:41:31	LCG-2_4_0	LCG-2_4_0	centos4-testwn.testgrid	OK	OK	FAILED	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

Rows displayed: **4**

Script written by Piotr Nyczyk (Piotr.Nyczyk@cern.ch)

Done www.cs.tcd.ie Proxy: TCD

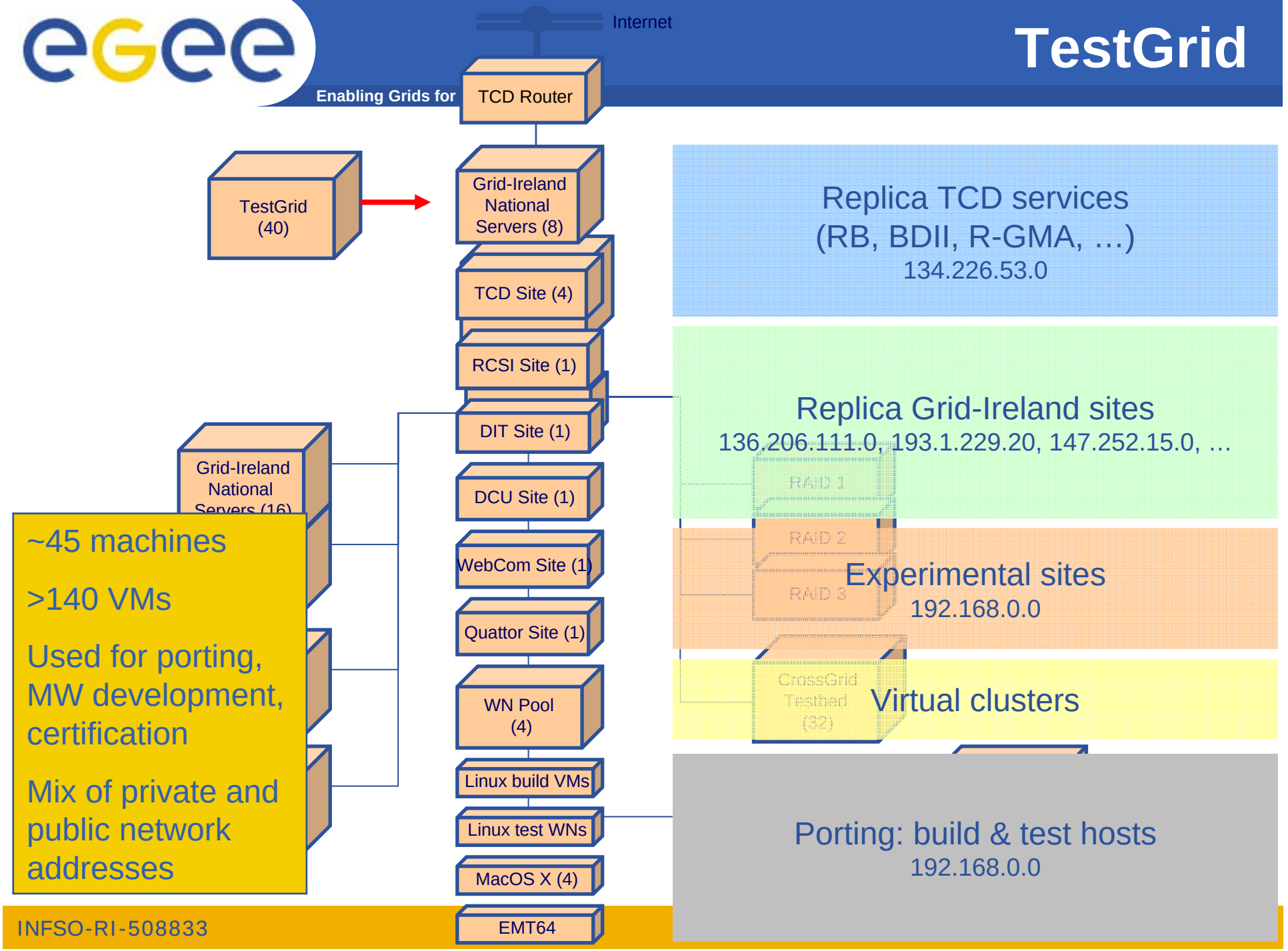
https://www.cs.tcd.ie/Stephen.Childs/cgi-bin/sitereports.cgi?site=gridgate05.testgrid

Grid-Ireland infrastructure

- **Infrastructure for building and testing ported software**
  - **TestGrid:** complete replica of national Grid infrastructure within isolated testbed
  - **Virtual machines:** build hosts and test WNs for Linux distros
  - **Autobuild:** extended version of EDG autobuild system
  - **Automated sync:** of build results and built packages to web
  - **Modified SFTs:** to allow tests targeted at specific queues

- **Advantages**
  - New porting targets slot into existing infrastructure
  - VMs make it cheap to add new flavours of Linux
  - Infrastructure also used for certification, experiments, development

TestGrid


Internet
TCD Router
TestGrid (40)
Grid-Ireland National Servers (8)
TCD Site (4)
RCSI Site (1)
DIT Site (1)
DCU Site (1)
WebCom Site (1)
Quattor Site (1)
WN Pool (4)
Linux build VMs
Linux test WNs
MacOS X (4)
EMT64
Grid-Ireland National Servers (16)
~45 machines
>140 VMs
Used for porting, MW development, certification
Mix of private and public network addresses
Replica TCD services (RB, BDII, R-GMA, …)
134.226.53.0
Replica Grid-Ireland sites
136.206.111.0, 193.1.229.20, 147.252.15.0, …
RAID 1
RAID 2
RAID 3
Experimental sites
192.168.0.0
CrossGrid Testbed (32)
Virtual clusters
Porting: build & test hosts
192.168.0.0

Conclusion

- **Porting is increasingly necessary**
  - As Grid moves outside HEP, clusters have to be shared
- **Developers should keep portability in mind**
  - See issues reported at Culham workshop: GridIrelandPorting.ppt
- **Porting doesn't just involve code fixes but also:**
  - Modifications to configuration scripts (e.g. Yaim)
  - Setting up a build and test infrastructure
  - Generating appropriate installation procedures on target
  - Patch management when fixes can't be integrated in standard releases
- **Need better co-ordination between those working on ports**
  - Contact details now at: http://www.grid.ie/porting
- **Grid-Ireland ports ready for beta testing: please send us feedback**

http://www.grid.ie/autobuild