

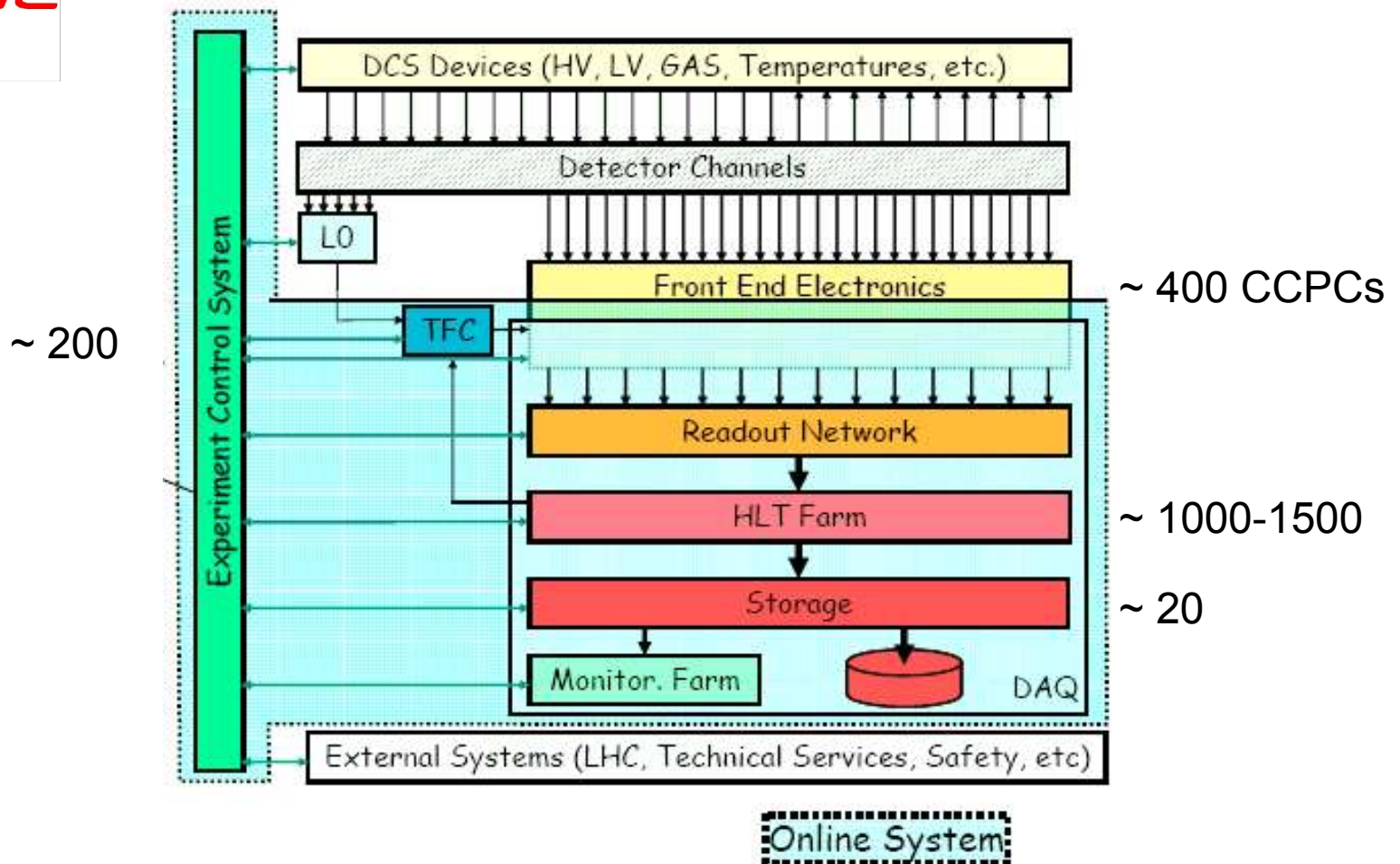


Quattor in LHCb

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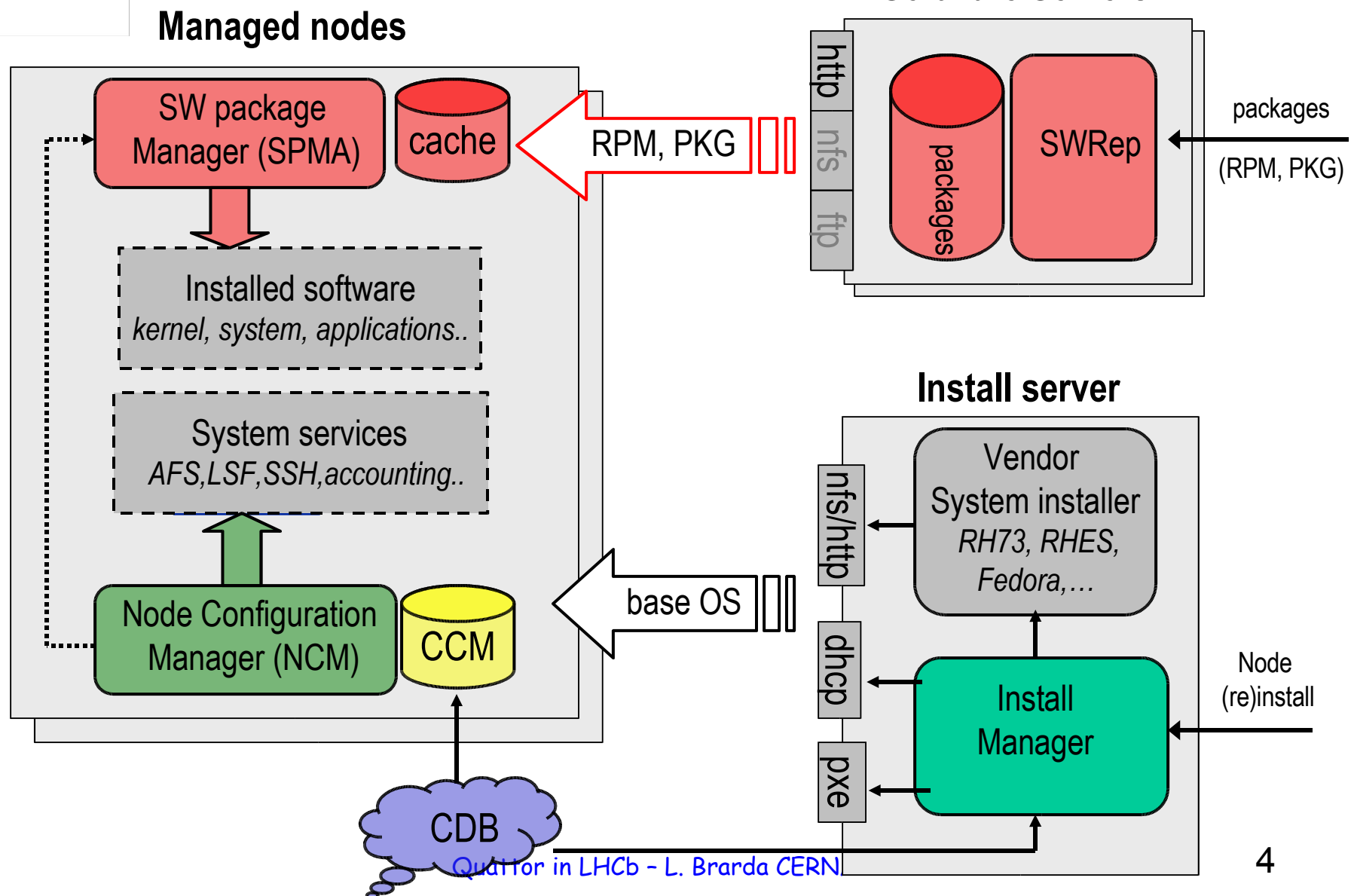
LHCb Online System



Linux Computer types

- HLT farm nodes (Diskless)
- Farm Control Servers
- CreditCard PC nodes (Diskless) : Embedded controllers
- CreditCard PC Control Servers
- Application gateways
- Infrastructure servers
 - DNS
 - NTP
 - NIS / LDAP
 - Kerberos
 - NFS/ Samba
 - Backups
 - Quattor
 - Disks servers ?

Quattor Structure





LHCb quattor template structure

- Node profile
 - includes its hardware type template
 - defines its specific parameters
 - MAC and IP addresses
 - Name
 - Serial number
 - ...
 - includes disk partitioning template
 - includes system type template

LHCb quattor template structure (2)

- Node profile
 - includes its hardware type template
 - defines its specific parameters
 - MAC and IP addresses
 - Name
 - Serial number
 - ...
 - includes disk partitioning template
 - includes system type template

LHCb quattor template structure (3)

- Node profile

- ir • **Hardware type template**
 - CPU type and nb
- d
 - Memory type and capacity
 - Hard disk type and capacity
 - Network interface types

- ir
- ir

LHCb quattor template structure (4)

- Node profile
 - includes its hardware type template
 - defines its specific parameters
 - MAC and IP addresses
 - Name
 - Serial number
 - ...
 - includes disk partitioning template
 - includes **system type template**

LHCb quattor template structure (5)

- Node profile

- ir
- d
 - **System type (role) template**
 - includes lhcb_(ux|sx) template
 - includes base software template
 - adds specific software
 - configure specific components
- ir
- ir

LHCb quattor template structure (6)

- Node profile

- in
- d
- in
- in

- System type (role) template

inc
inc
add
con

- lhcb_(ux|sx) template

defines general parameters
DNS, NTP, NIS, Kerberos ...

LHCb quattor template structure (7)

- Node profile

- ir
- d
 - System type (Role) template
 - includes lhcb_(ux|sx) template
 - include **base software template**
 - adds specific software
 - configure specific components

- ir
- ir

LHCb quattor template structure (8)

- Node profile

- includes **System type template** includes lhcb_ (ux)lex) template

- defines **base software template** includes additional components

- Base package (rpm) set :
Everything which is common to all linux installs.
- Swrep Repositories
Where to get these rpms.

- includes

- includes

LHCb quattor template structure (9)

- Node profile

- in System type (Role) template
 - includes lhcb_(ux|sx) template
- d include base software template
 - adds specific software
 - configure specific components

- in
- in

LHCb quattor template structure (10)

- Node profile

- include System type template
 - includes lhcb_ (ux) template
- default adds specific software & configure specific components
 - Eg : for a server for diskless nodes, DHCPD should be installed and configured
- include
- include

SWrep software repositories

- Each repository is a flat folder
 - we don't use areas but multiples repositories for each platform type and software source :
(i386|x86_64)_SL4(base|extra|onlycern|quattor|lhcb)
 - i386_SL4_base, i386_SL4_extra, ...
- One defaults template for all repositories for a platform.
(generated with RPMGetDefaults.pl)

Diskless nodes

Actual status

- ncm-diskless_server component from Vasilis Christaras & Matthias Schroeder
- Uses Redhat way of doing diskless nodes
- Server :
 - hosts PXE/DHCP/TFTP daemons
 - shares a readonly root filesystem with NFS
 - shares read/write folder for each diskless node
 - Quattor is run chrooted on the root filesystem with a special (proto) node template to do all software installation and general configuration
- Nodes :
 - Quattor is run for node specific configuration

Diskless nodes

Missing functions

- chrooted quattor is run once at server installation (from kickstart file), but there is no way to have it triggered on proto_node template change.
- When quattor change a service configuration on the chrooted environment, the service should be restarted on all diskless nodes.

Diskless nodes

Other ways to explore

- Have all /etc and /var on the writable fs
 - Have only spma chrooted on the server
 - Have all other components run on the nodes
- Use UnionFS / AUFS
 - make two filesystems (ro & rw) seen as one rw.
 - Same behaviour as before

Issues / wishes

- No way to test packages dependencies without installing a test node (Matthias Schroeder trick to have yum working on the test node helps a lot)
- Pan structures changes between quattor versions
- Totally outdated Pan User Conventions document (July 16, 2004)