CMS SOFTWARE INSTALLATION

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The Challenge

Gigantic Detectors

The CMS Detector

CMS Collaboration:
- 36 Countries
- 160 Institutes
- 2000 Scientists & Engineers

CMS data taking:
- Event rate: 100 events/second
- Event size: 1 MB
- Events/year: 1 billion
- Total raw data/year: 1,000,000 GB
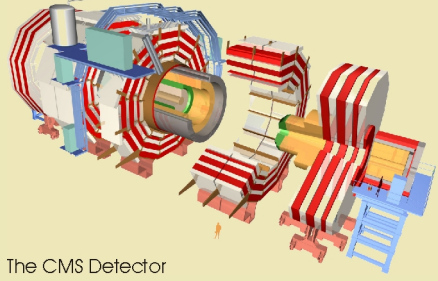
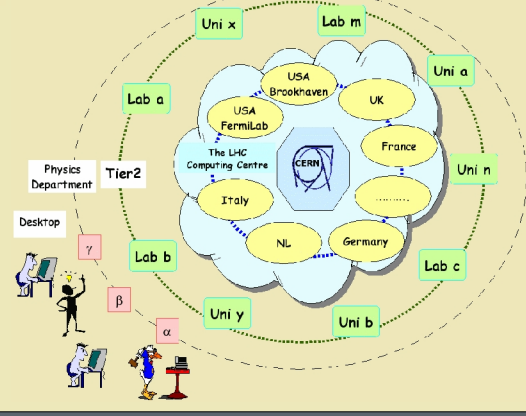**Software distribution requirements:**
- Relocatable packages
- No root privileges necessary
- Optional network download
- Command-line installable
- Saveable and reusable set-up
- Included validation procedure
- Concise configuration also for
  less experienced users
- Multiplatform support
- Multiple installations (old/new/pro)

Complex Software
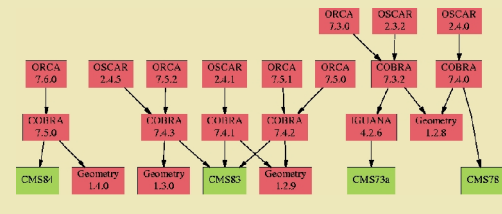
Grid Computing

A typical installation of CMS Software:
- 1 GCC compiler package
- 1 SCRAM package
- 40 CMS RPM packages
- 30 LCG RPM packages
=> 72 packages of 1 GB in total
Unpacked: 4 GB of disk space

A Solution: xcmsi

Configuration GUI

Provides complete CMS software environment for development and data analysis

Choose software to install:
- Tags: Select set(s) of RPMs resolving dependencies
- Archives: Select single or multiple RPMs

1.

Load configuration (optional)

Change configuration (if necessary)

2.

Show configuration (optional)

3.

Save configuration
- Mandatory to transfer configured settings to command-line installer

Command-line Installation

4. Start, verify or update installation

GridKa compute nodes

```
CmsSwGridInstall.pl
    -t rpm --site fzk.de
    --install "ORCA_8_4_0 OSCAR_3_4_0"
```

Personal notebook

```
cmsi.pl
    -f cmsset_default.csh
    -d "ORCA_8_4_0 OSCAR_3_4_0"
```