LHCb Data Challenge plans

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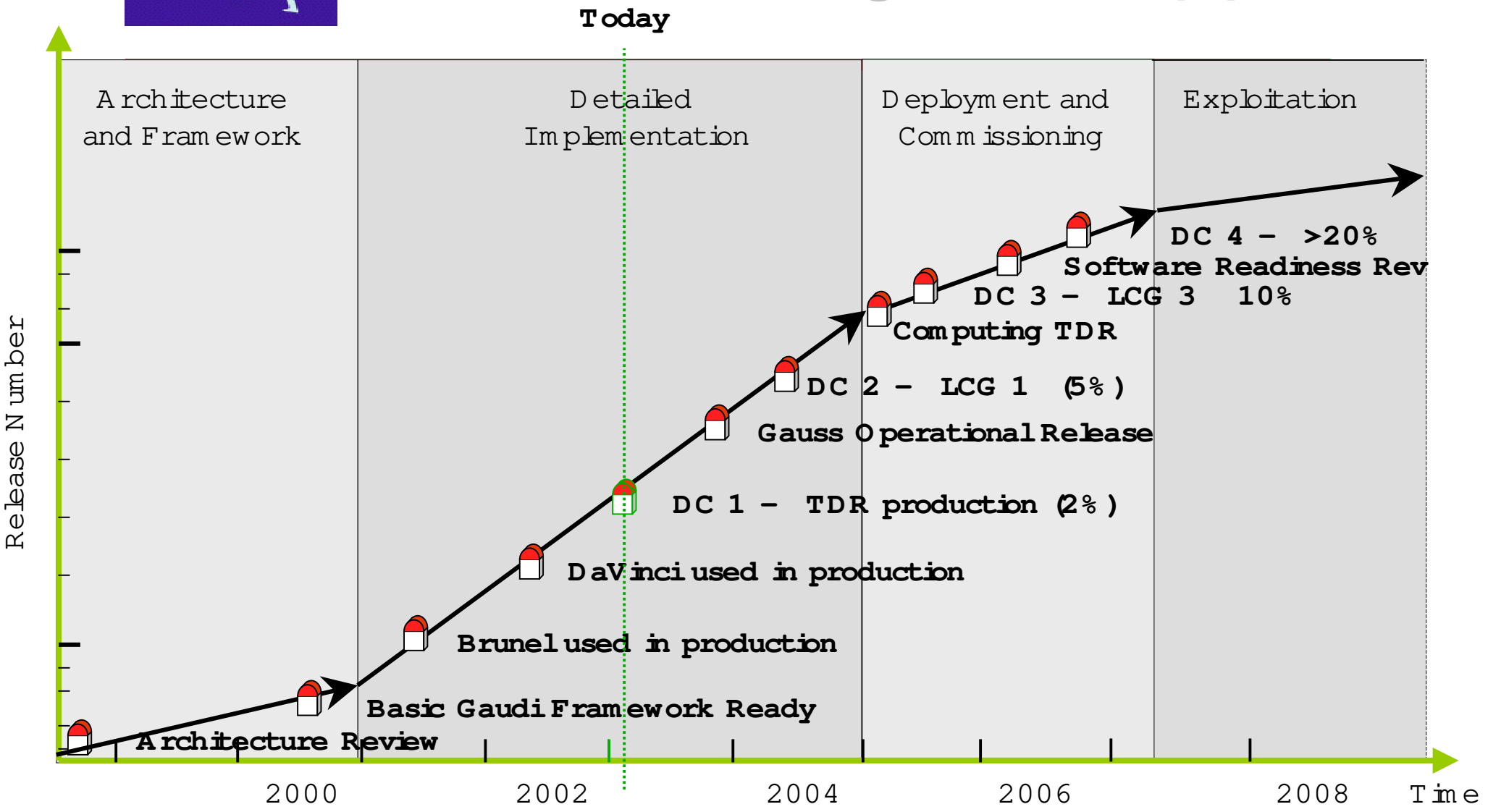
- Data Challenge Plans
- Analysis problems and requirements (some ideas for GAG to look at)

Data Challenge plans (1)

1. **february – may 2003: physics data challenge**
   - DataGrid being integrated, initial tests encouraging
   - DataGrid equivalent to one of our major centres
2. **october – december 2003: high level trigger studies**
   - Intend using LCG1
   - Prototype analysis model
   - 1st guesstimate of LHCb resource needs
3. **spring 2004: computing data challenge**
   - Test of OO Geant4 based simulation program (GAUSS)
   - Performance and quality of OO s/w (Gaudi, Brunel, Gauss, DaVinci)
   - Production and analysis tools (DIRAC, GANGA)
   - First Grid based analysis using LCG1
   - Physics Model -> Computing Model

Data Challenge Plans (2)



Analysis problems and requirements (1)

- **Typical Analysis requirements:**
  - CPU event
  - Event size
  - Number of events
  - Number of ongoing analysis
  - CERN vs external analyses
  - Frequency of “ntuple” generation
  - Network requirements
- **Production analysis (re-generation of TAG data)**
  - Central production analysis vs. user analysis

Analysis problems and requirements (2)

- **Replica management:**
  - Scalable (access to thousands of files)
  - Fast
  - Need to quantify the problem
- **Rapid user response time:**
  - Parallellize to a very fine level (event, file?)
  - API for applications to follow
- **Send job to data, or send data to job?**
  - Quantify costs, set metrics

Analysis problems and requirements (3)

- **Per job installation of software**
  - Clean up before, after?
  - Software repository API?
- **Analysis algorithms will be in a scripting language**
- **Interactive analysis to be studied later**
  - Objects should be accessible remotely (POOL)

Analysis problems and requirements (4)

- **How to perform detector calibration and alignment?**
  - Just call on Tier 0 resource at CERN?
- **How many reconstruction passes**
  - Where to perform nth passes on data – CERN?
- **Re-address data rates/flows**
  - Values may have changed since Hoffman review