# ATLAS DETECTOR DESCRIPTION DATABASE ARCHITECTURE

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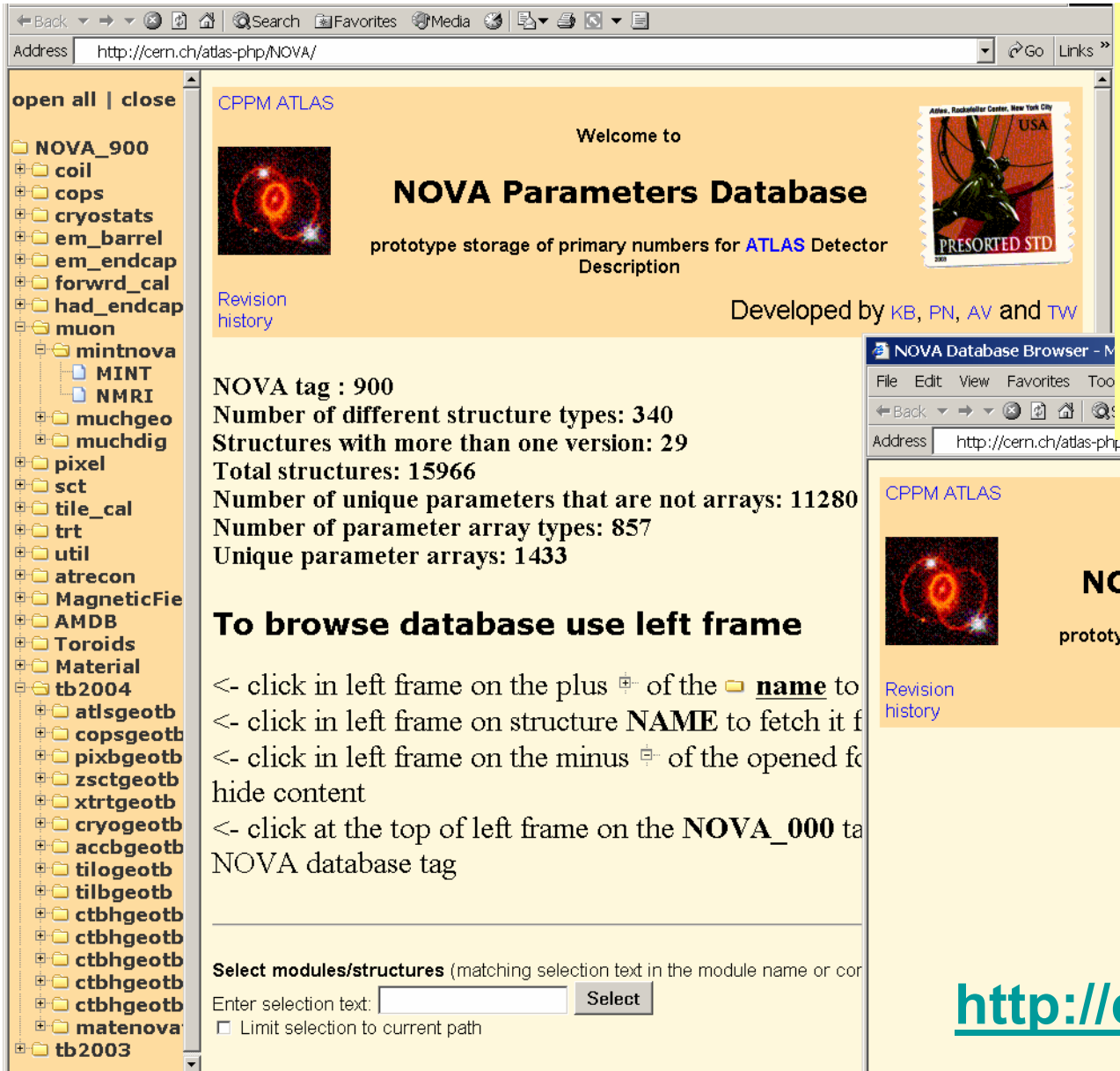
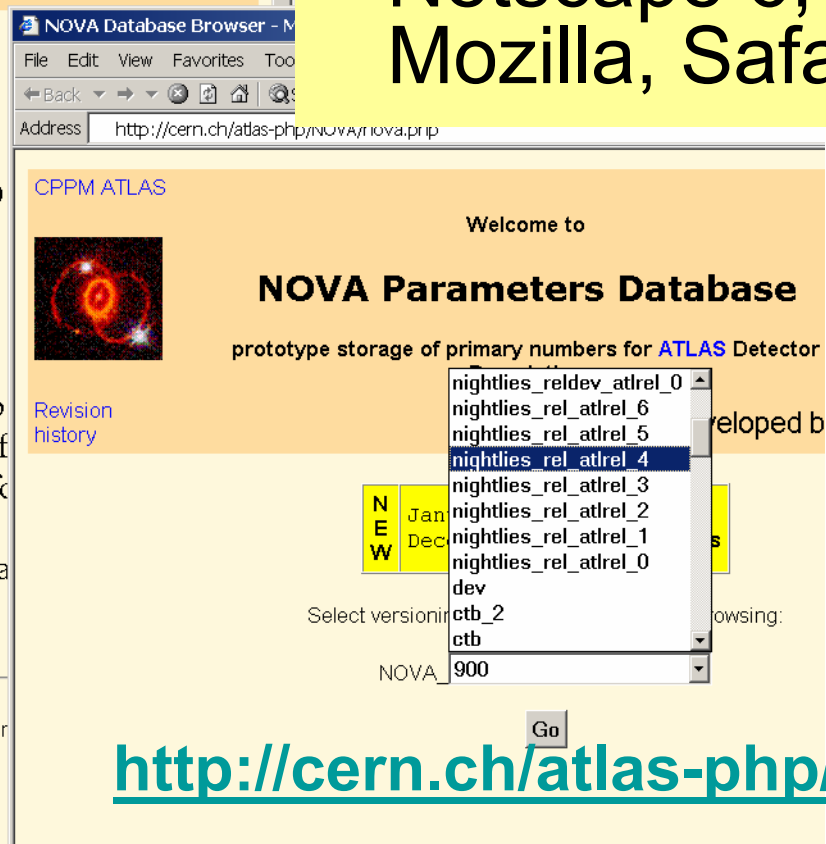
# NOVA Database

- MySQL “primary numbers” database NOVA is currently a unified source of **30K** parameters for Detector Description in ATLAS Combined Testbeam and Data Challenge 2 operations
- Common to all ATLAS subsystems
- Combined Testbeam support:
  - another detector geometry in the database
  - NOVA technologies for conditions/calibration data

# Tools for Data Navigation



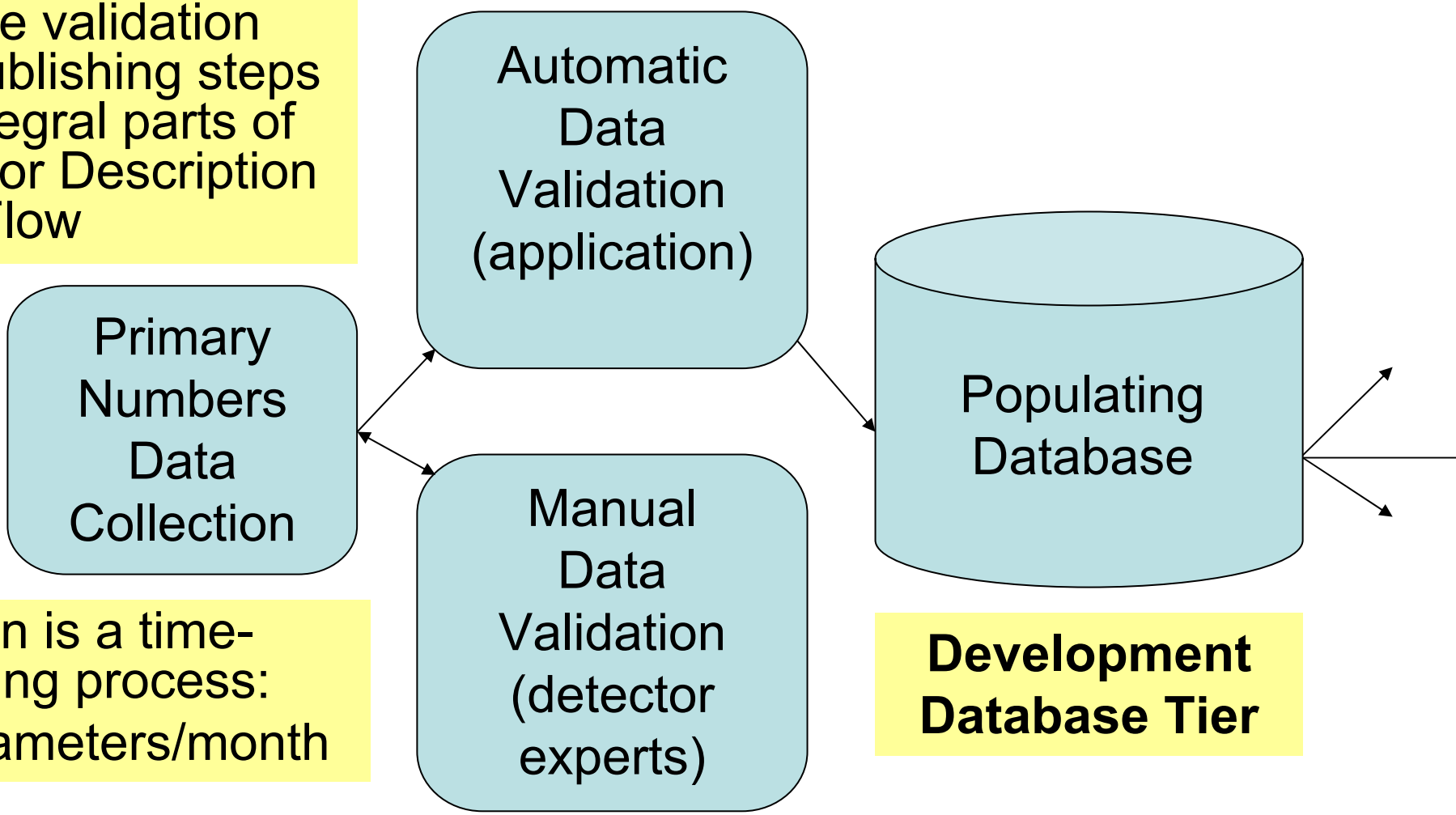




- Selection of tags and versions
- IExplorer, Netscape 6, Mozilla, Safari

http://cern.ch/atlas-php/NOVA

# Data Flow

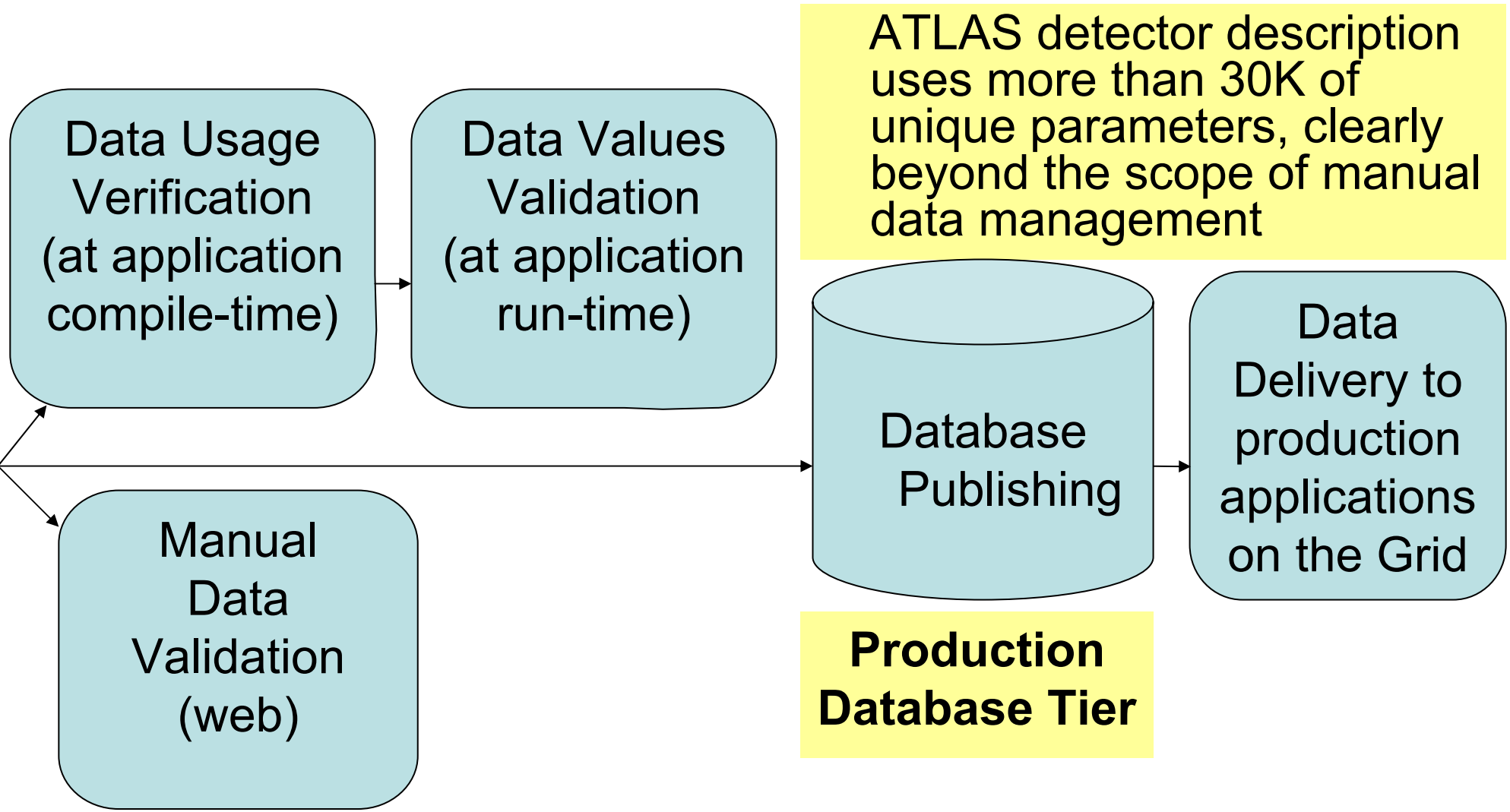
Multiple validation and publishing steps are integral parts of Detector Description Data Flow




Validation is a time-consuming process:
100 parameters/month

**Development Database Tier**

# Architecture

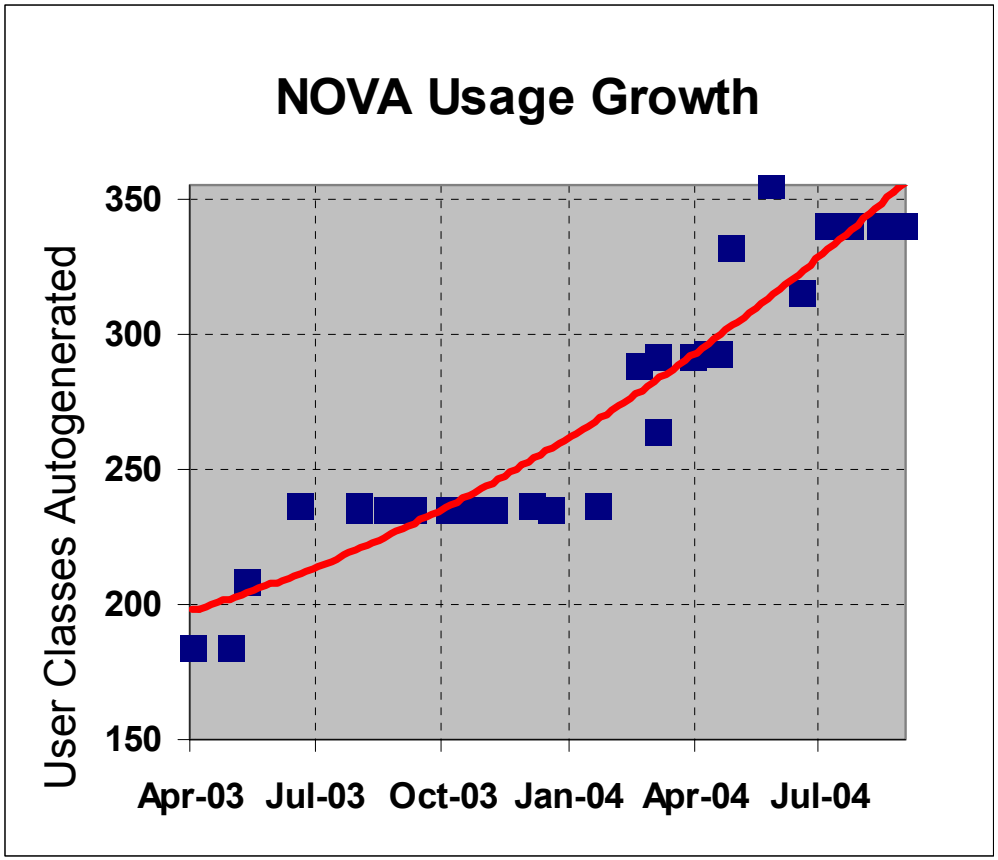


# Components of Success

- Access from ATLAS software framework Athena:
  - NOVA Conversion Service independence on database tag and NOVA objects shapes or versions
  - Automatic generation of more than 300 converter classes facilitating strict C++ type-checking for all of the 30K unique parameter names at compile-time:
    - about 10% of ATLAS offline code

- Multiple versions of geometry
- Geometry versions tagging
- NOVA Web Browser
- Conditions data browser integration for Combined Testbeam

# Knowledge Discovery

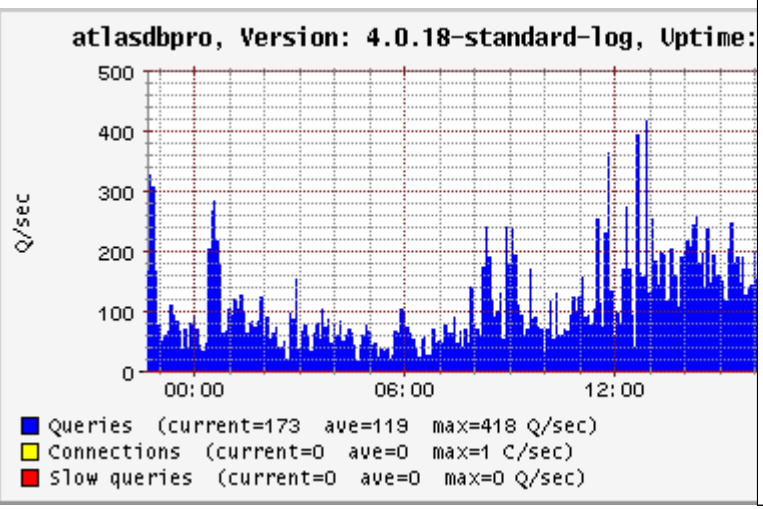


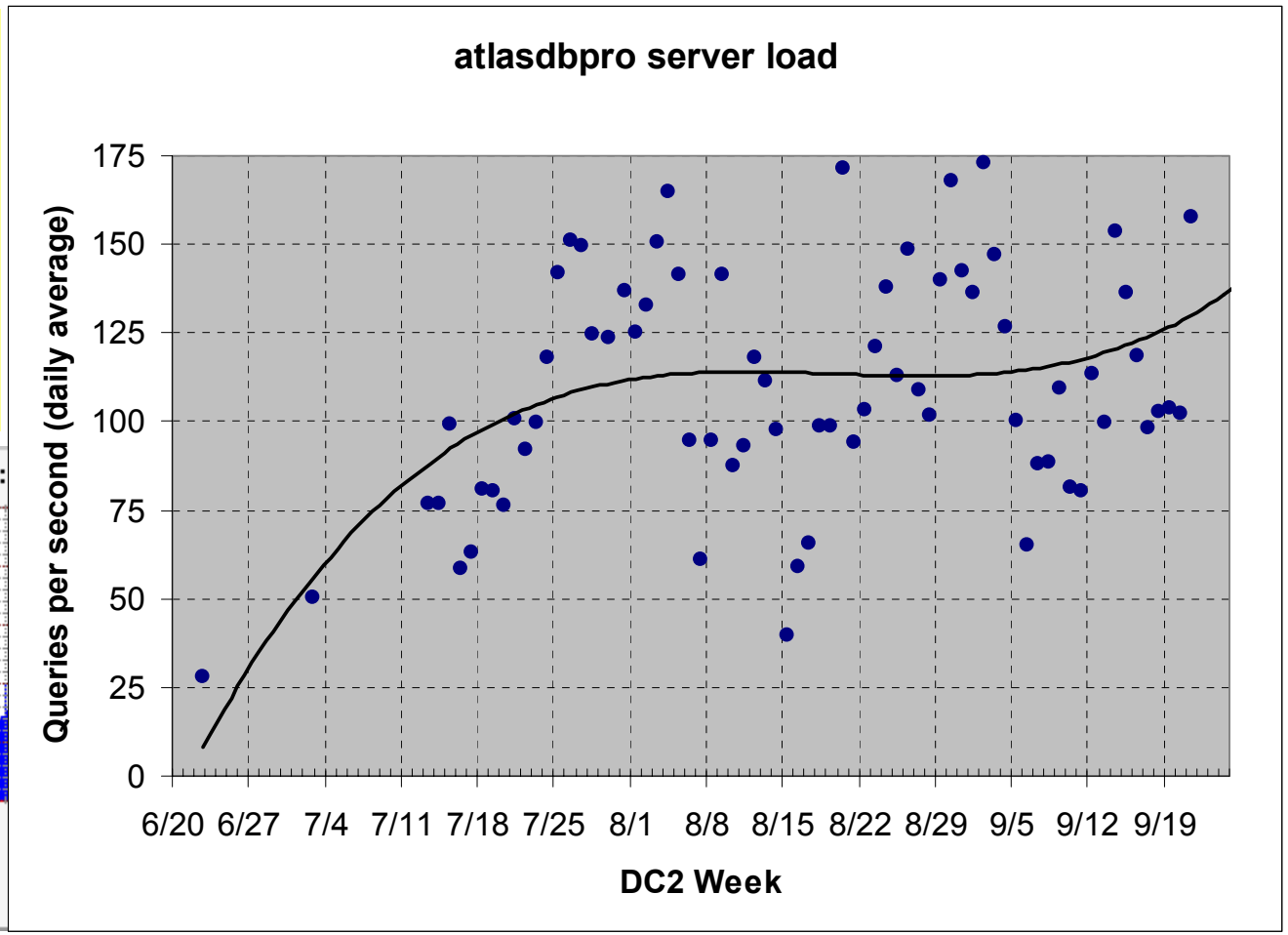

Across all subsystems Detector Description knowledge grow over time

- Transition to Oracle rapidly gained a very strong momentum
- Tools for generation of SQL scripts for Oracle data input
- Most of NOVA structures are now in the new Oracle database

# Validating Computing Model in DC2

Data flow is monitored to probe database server limits and identify potential bottlenecks from chaotic access patterns on the Grid




Most of DC2 database-resident data flow comes from NOVA

# NOVA Database Access on the Grid

Failure rate is less then 0.1%