NIF Tools and Applications and the NIF User Experience

Presentation to
NIF/JLF User Group Meeting
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A wide range of national and international researchers are involved in NIF experiments (fundamental science, ignition,…)
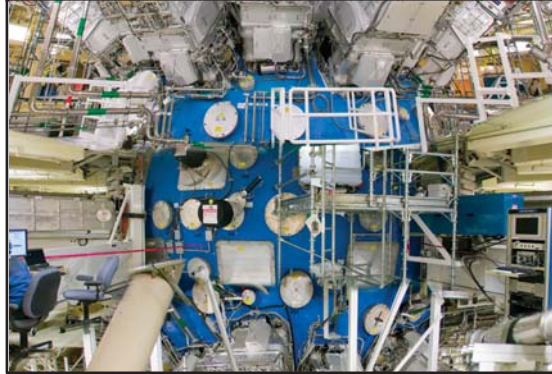
NIF User Tools and Applications supports the user community

NIF User Tools and Applications
supports the entire experimental cycle

Proposal submission, evaluation, award

Experimental planning scheduling, execution

Data analysis and post-experiment support

We've established a working group to address user needs

- **Includes members from the NUG Executive Committee and NIF staff**

Site access, office space, computer access

Provide the tools to develop, execute, and analyze NIF experiments- tailored to the needs and level of knowledge of the individual user
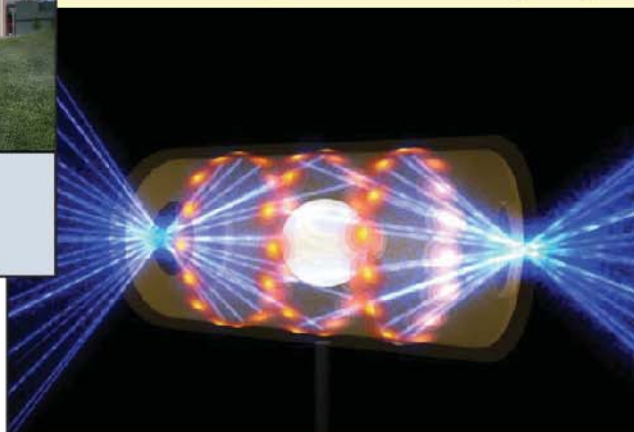
User Tools and Applications evolve with NIF

NIF Project

Facility commissioning

National Ignition Campaign

Platform commissioning

National User Facility

Ensuring a successful user experience

Leveraging a rich set of experience, tools and infrastructure

A variety of tools to schedule, setup, and view results of NIF experiments have been developed
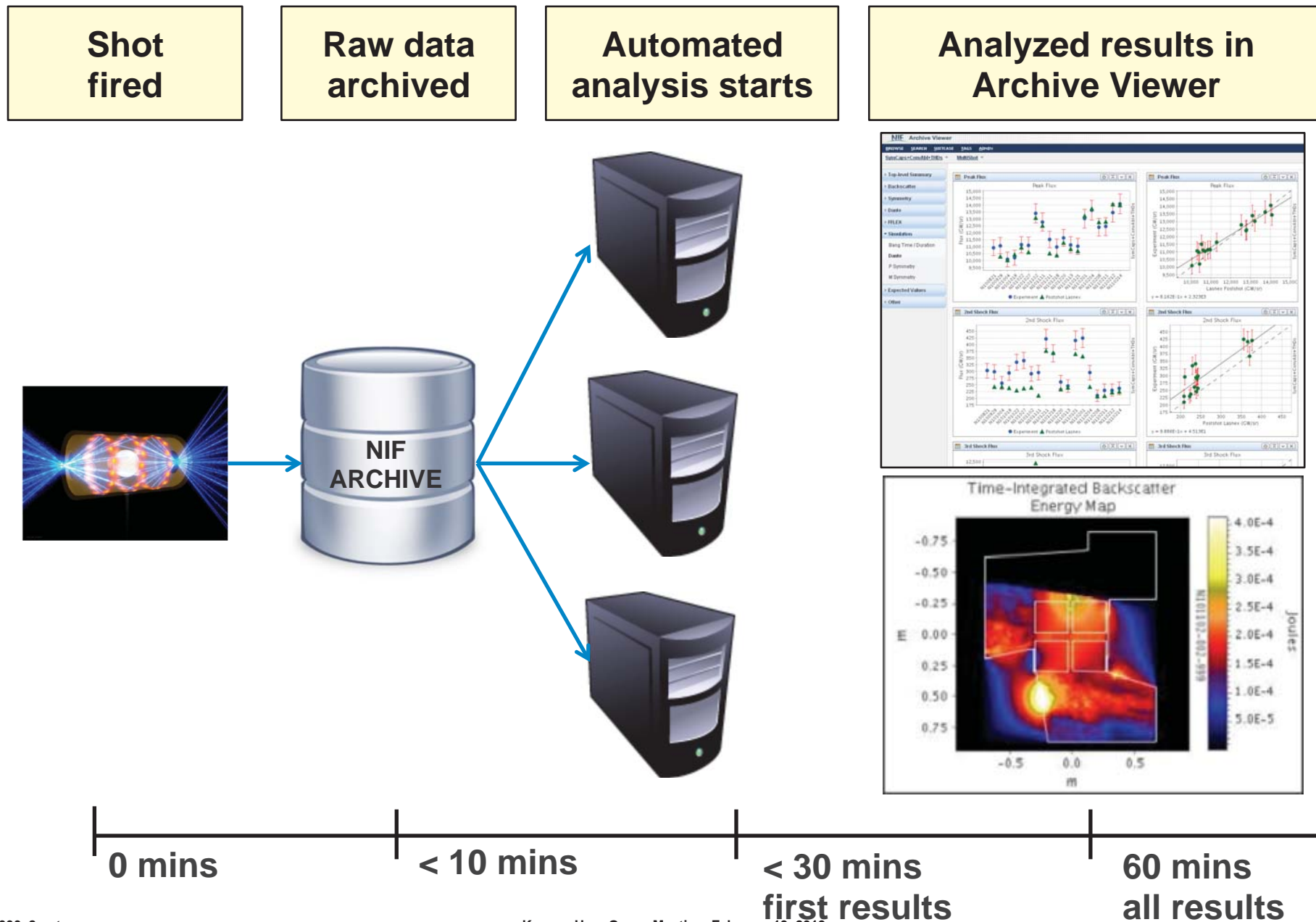
- Shot Planning Application Tool (SPLAT) is used to schedule experiments on the facility

- Campaign Management Tools (CMT) support the specification and approval processes for all NIF shot experiments

- Laser Performance Operations Model (LPOM) validates the setup and predicts laser energetics

- Archive Viewer (AV) provides many forms of access to the results of the automated post shot analysis

These tools are aimed primarily at individuals strongly involved in day to day execution of experiments – evolution of these tools will be responsive to user needs

NIF Archive Viewer

- **Interactive, web-based tool for experimental data exploration**

- **Access to raw and processed data, laser results, shot setup, diagnostic configuration, and instrument calibration**

- **<u>Automated</u> analysis for many diagnostics (e.g. Dante, SXI, nTOF, …) within an hour of shot**

- **Approximately 60 terabytes of NIF data are available**

Visualization of Raw and Analyzed Data

Shot fired	Raw data archived	Automated analysis starts	Analyzed results in Archive Viewer

| 0 mins | < 10 mins | < 30 mins first results | 60 mins all results |

Archive Viewer Demonstration

We spotlight 3 shots:

- **N130102-001: Fe EOS (PIs: T. Duffy (Princeton), R. Jeanloz (UC Berkeley); lead NIF experimentalist: R. Smith)**

- **N130103-009: Gbar EOS (PI: R. Falcone, UC Berkeley; lead NIF experimentalist: T. Doeppner)**

- **N120321-001: DT layered implosion (Lead NIF experimentalist: H.S. Park)**
  - **2xSi capsule w/ 320TW no-coasting drive slow rise on 4th shot**
  - **Mix Campaign**

Data Systems CIS