Salesforce Use to Support the National Ignition Facility (NIF)

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LLNL-PRES-XXXXXX
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The NIF is a world-class laser system designed to support users in the high-energy density science field

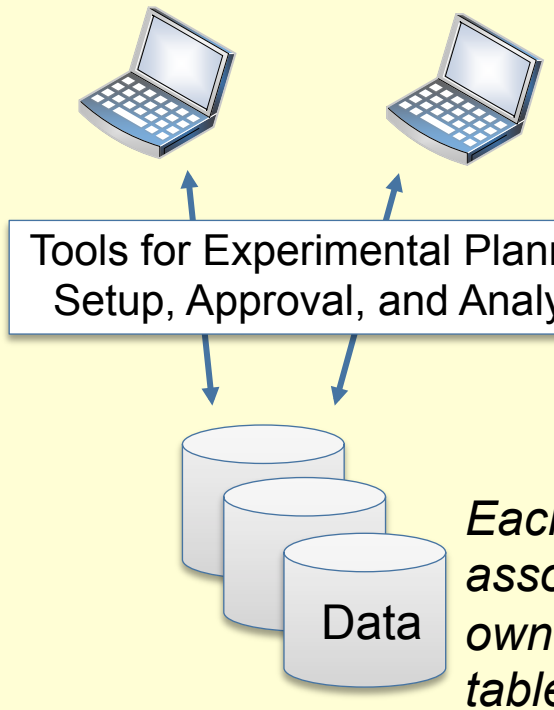
- In 2009, the first set of experiments were carried out at the NIF.
  - Most users were resident experimentalists.
  - Users were assumed to have expert-level knowledge.
  - Emphasis was placed on commissioning.
- Since 2012, NIF has continued to evolve as a user facility.
  - Users include experimentalists (expert to the novice) and reviewers.
  - The number of users external to LLNL is growing.
  - Emphasis is on operational efficiency and streamlines processes.

NIF has placed an emphasis on improving the user experience with software tools.

NIF software tools began as stove pipes designed to commission some specific function during the experimental process

The World
(open network)

LLNL
(internal network)



Each tool associated with own database tables

Requesting facility time for an experiment involved emailing the appropriate personnel an excel document

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(open network)

LLNL
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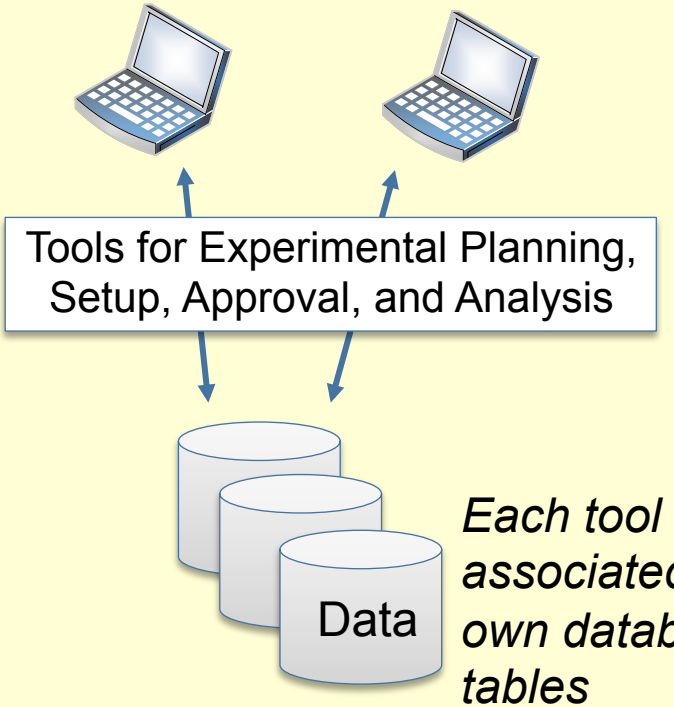

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Software tools are migrating to a set that provides an integrated, collaborative environment to users both inside and outside LLNL

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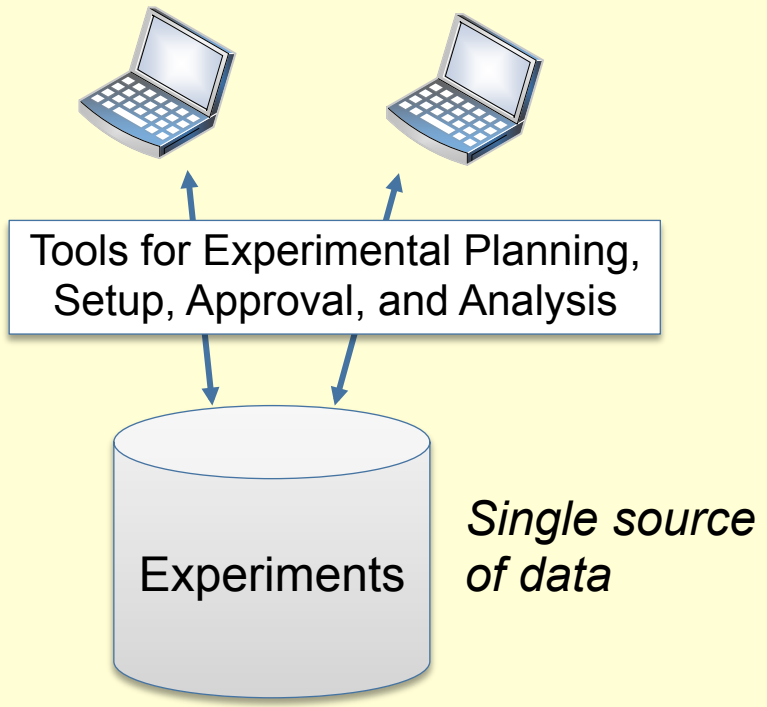

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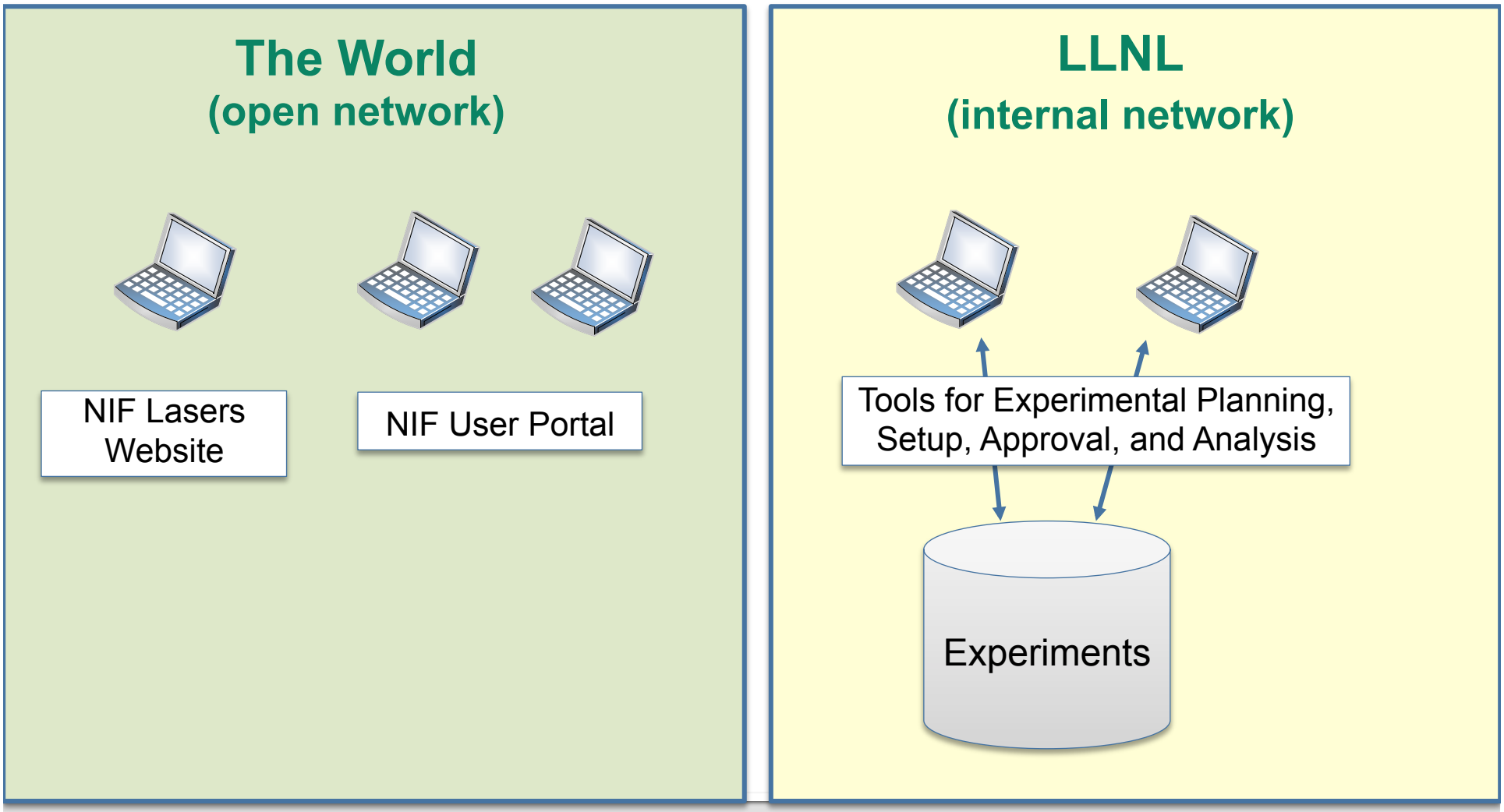
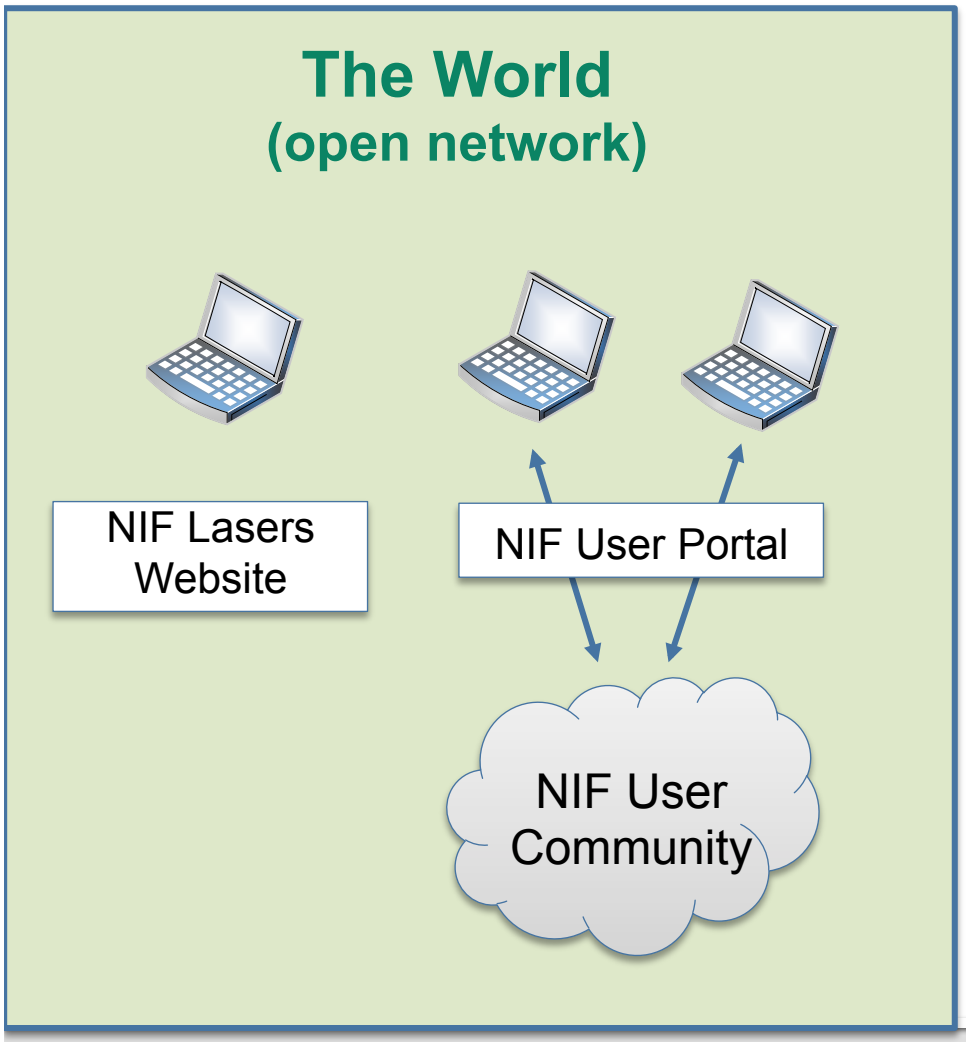


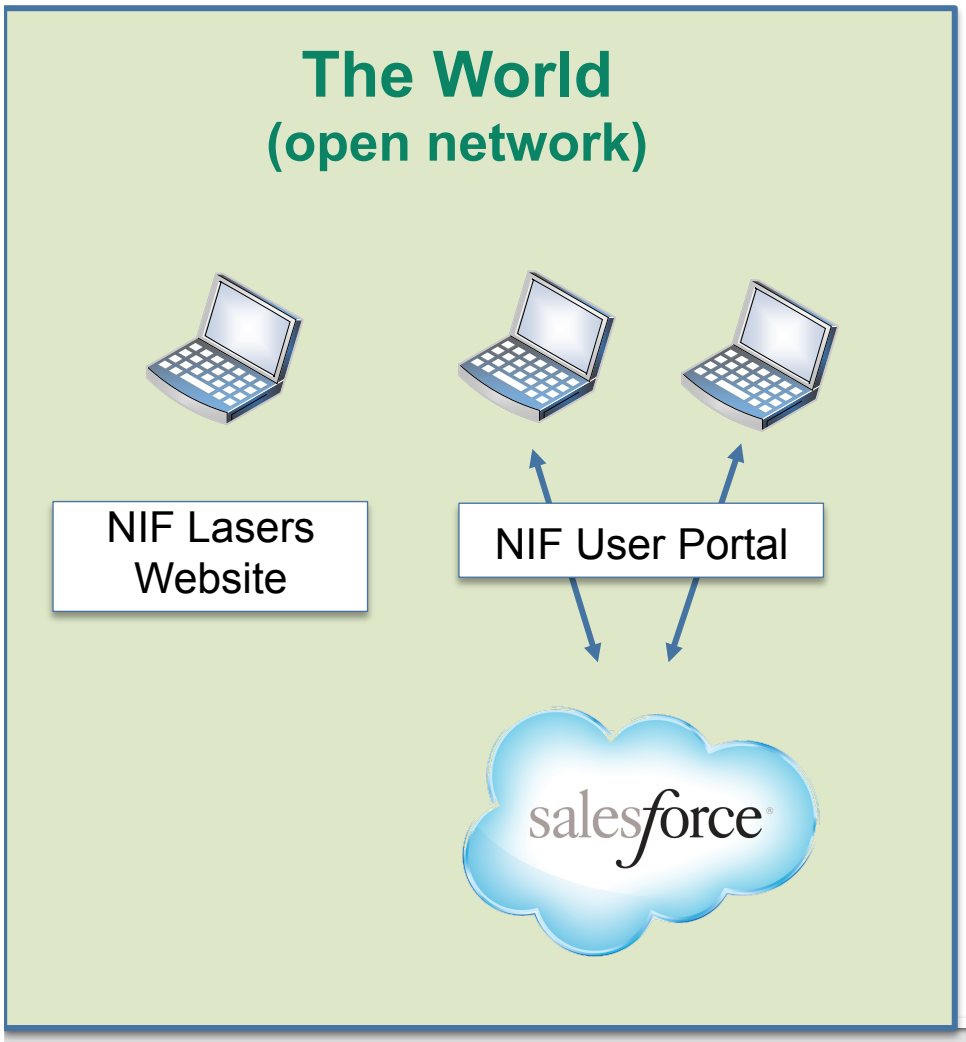
The NIF User Portal is intended to allow for users to connect with the facility and other collaborators from an external site



Business Cases:

- Manage user accounts
- Submission and review of user proposals
- Viewing the status of scheduled experiments associated with approved proposals.
- Archival of documents from workshops and conferences

The NIF User Portal is being developed on the Salesforce Govcloud platform



- Salesforce was founded in 1999.
- Majority of revenue comes from its customer relationship management (CRM) product.
- Salesforce offers a Platform as a Service (PaaS) that allows developers to create multitenant add-on applications that integrate into their main application.
- The NIF decided to build on the PaaS, called *Force.com*, and have data stored in a federated Govcloud.

Why Salesforce was selected as the platform?

Vendor maintains hardware

Vendor maintains security

COTS but can customize

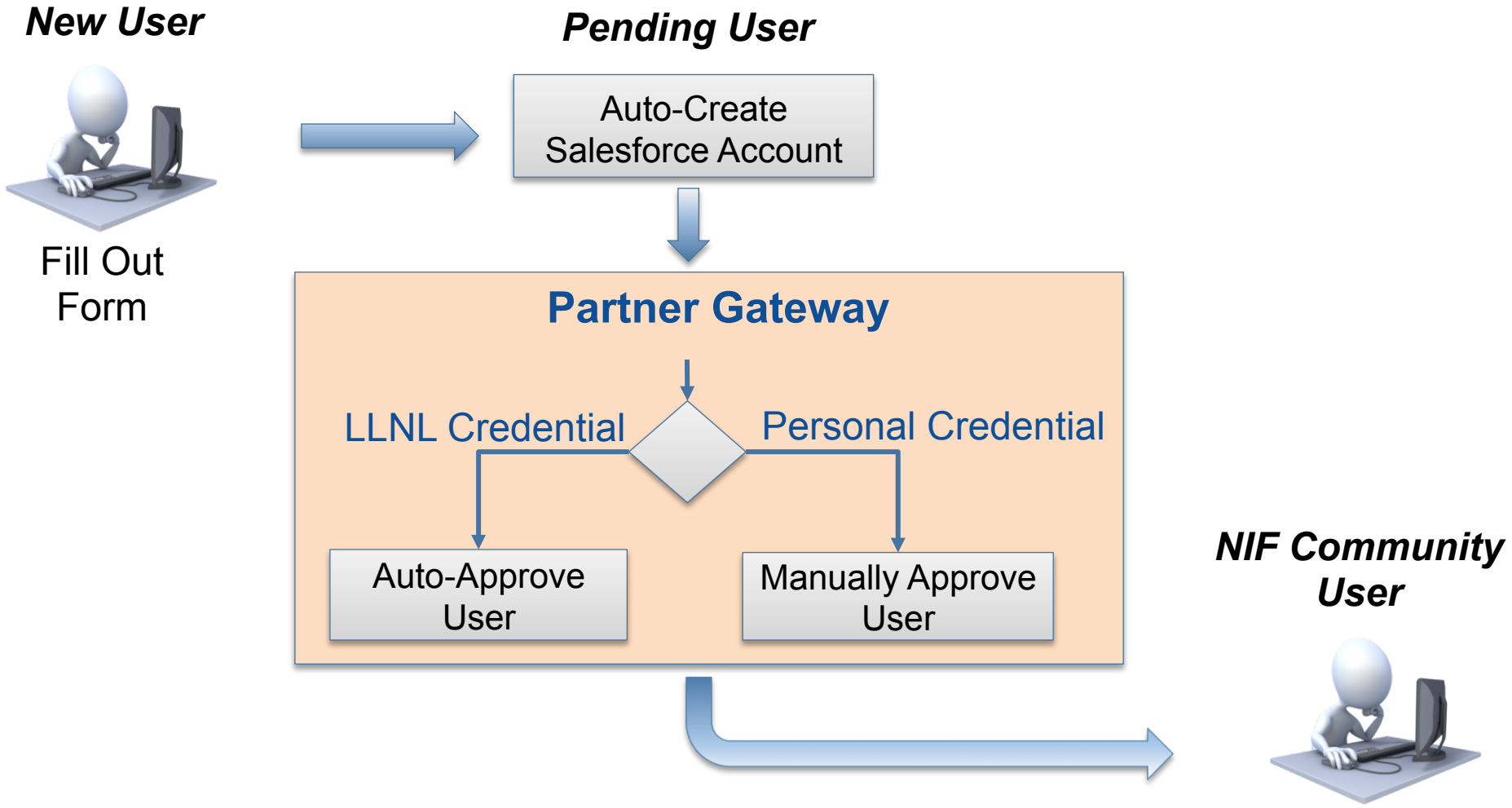
Apex language integrates with latest tech stack

Reliance on vendor hardware and COTS software reduces cost.

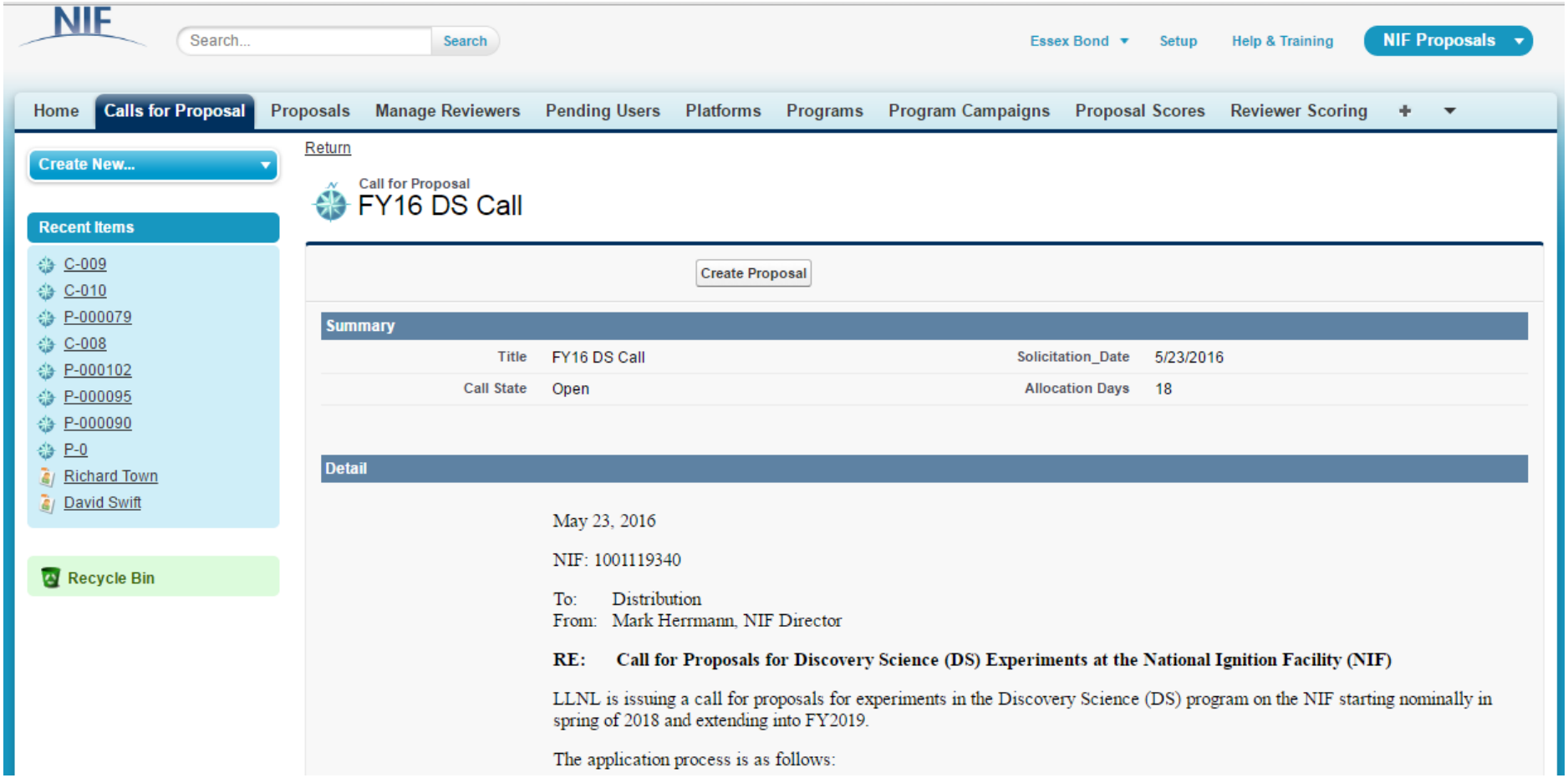
Obtaining an Authorization to Operate (ATO) the User Portal required time and planning

- **Salesforce has commercially-sensitive documents that cannot be downloaded or printed.**
  - **Led to cumbersome communication between Salesforce and IT**
- **Salesforce requires 75% code coverage.**
  - **Start working on automated test scripts early.**
- **Understand the roles and responsibilities with IT testing.**
- **It was important to obtain an Authorization to Evaluate from the Field Office.**
  - **Allowed for testing to occur in the Salesforce environment.**

NIF uses the federated partner gateway to create community users in Salesforce

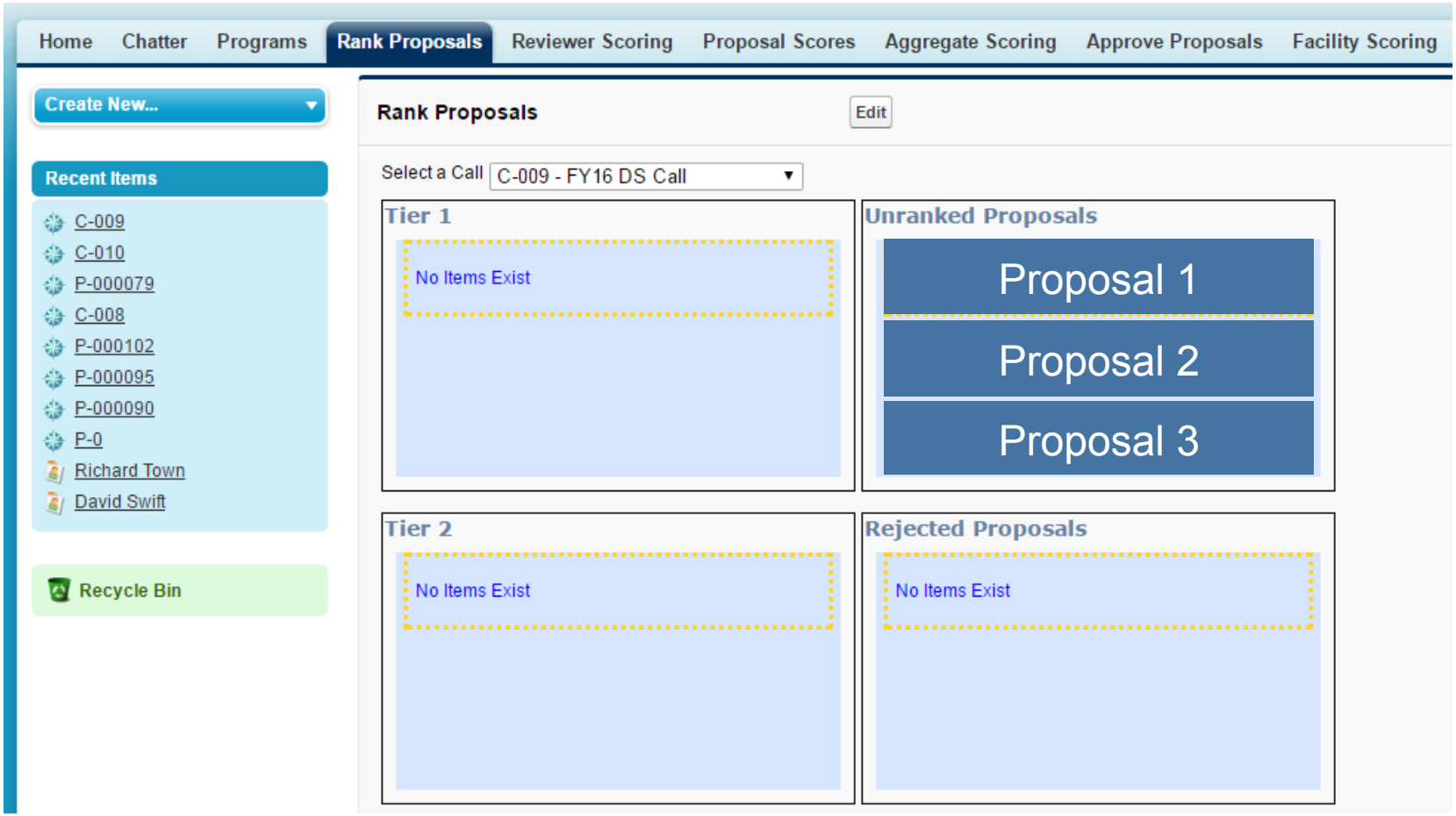


The Proposal Management Tool was released in the user portal one year ago (http://nifportal.force.com/)



Common interface for all users to interact with their proposals and experiments

The proposal tool includes a drag and drop interface for reviewers to rank proposals



Collaboration can occur via the web instead of relying solely on Excel.

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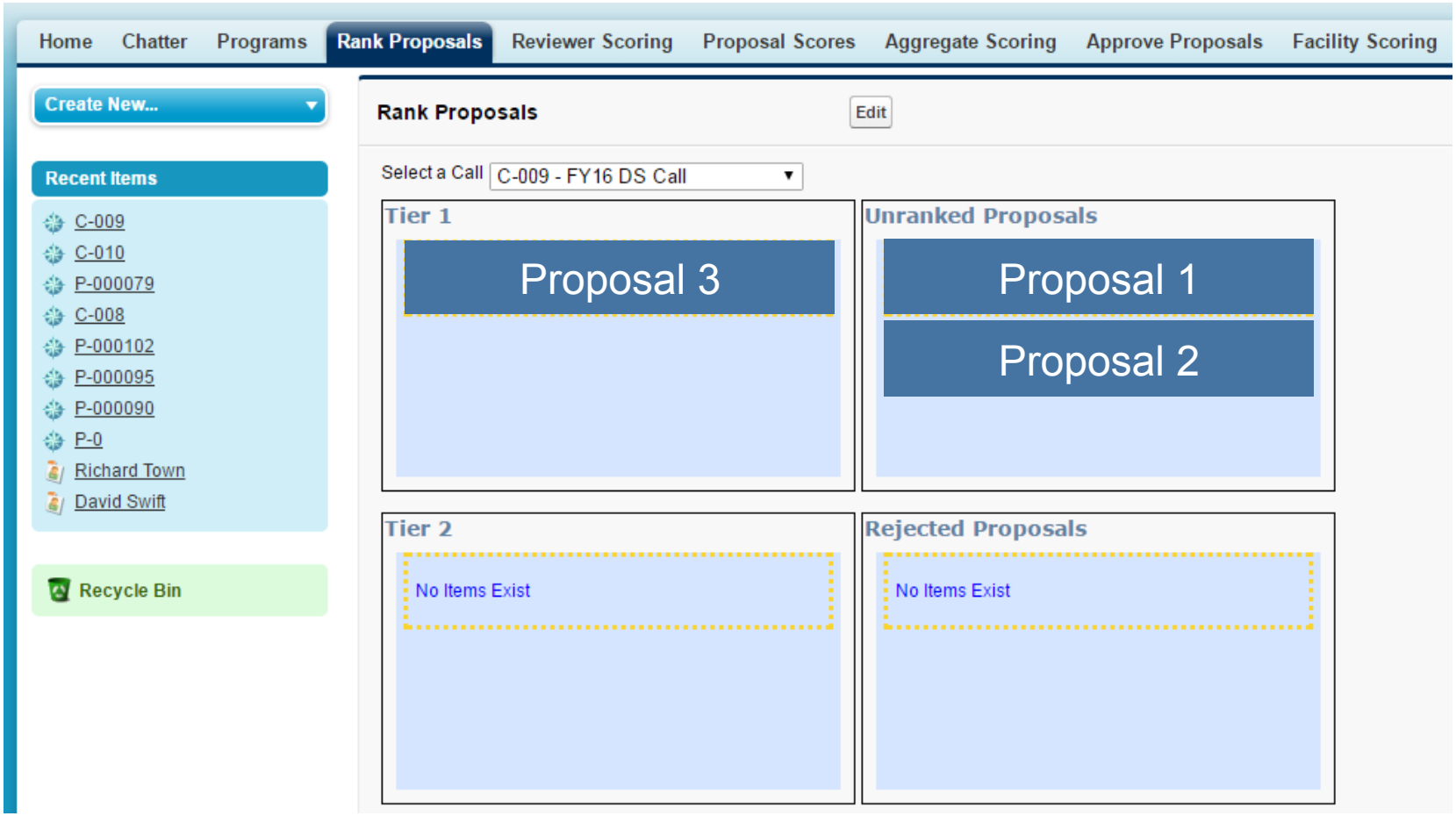


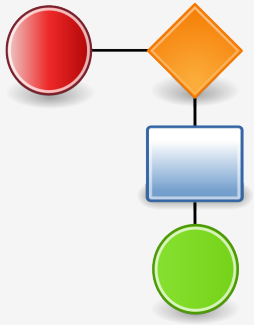
Collaboration can occur via the web instead of relying solely on Excel.

As with all tools there are advantages and disadvantages with Salesforce

The Good

Collaboration

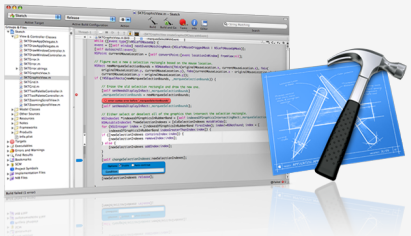
Unit Testing



Workflows

Object Security

The Not So Good

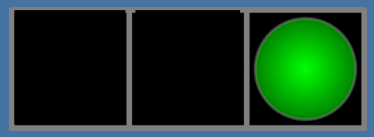
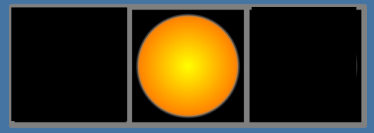


Development Environment

Debugging

The Way It Is

Future Work: Show key experimental lifecycle status information to the user

Experiment #1	Current Status
T-6 Month Review	
T-3 Month Review	
T-3 Week Review	
Ready To Execute	

Summary

- One year ago the NIF User Portal was launched using the Salesforce platform with data stored in a government cloud.
- Taking the federated approach to the portal allowed the software team to deploy the portal under a tight schedule.
- Federated identity is used to onboard users into the NIF user community.
- The portal currently contains a single application, the proposal management system, with more to come in the future.
- We are open to discussing partnerships with using any of the tools in the portal.

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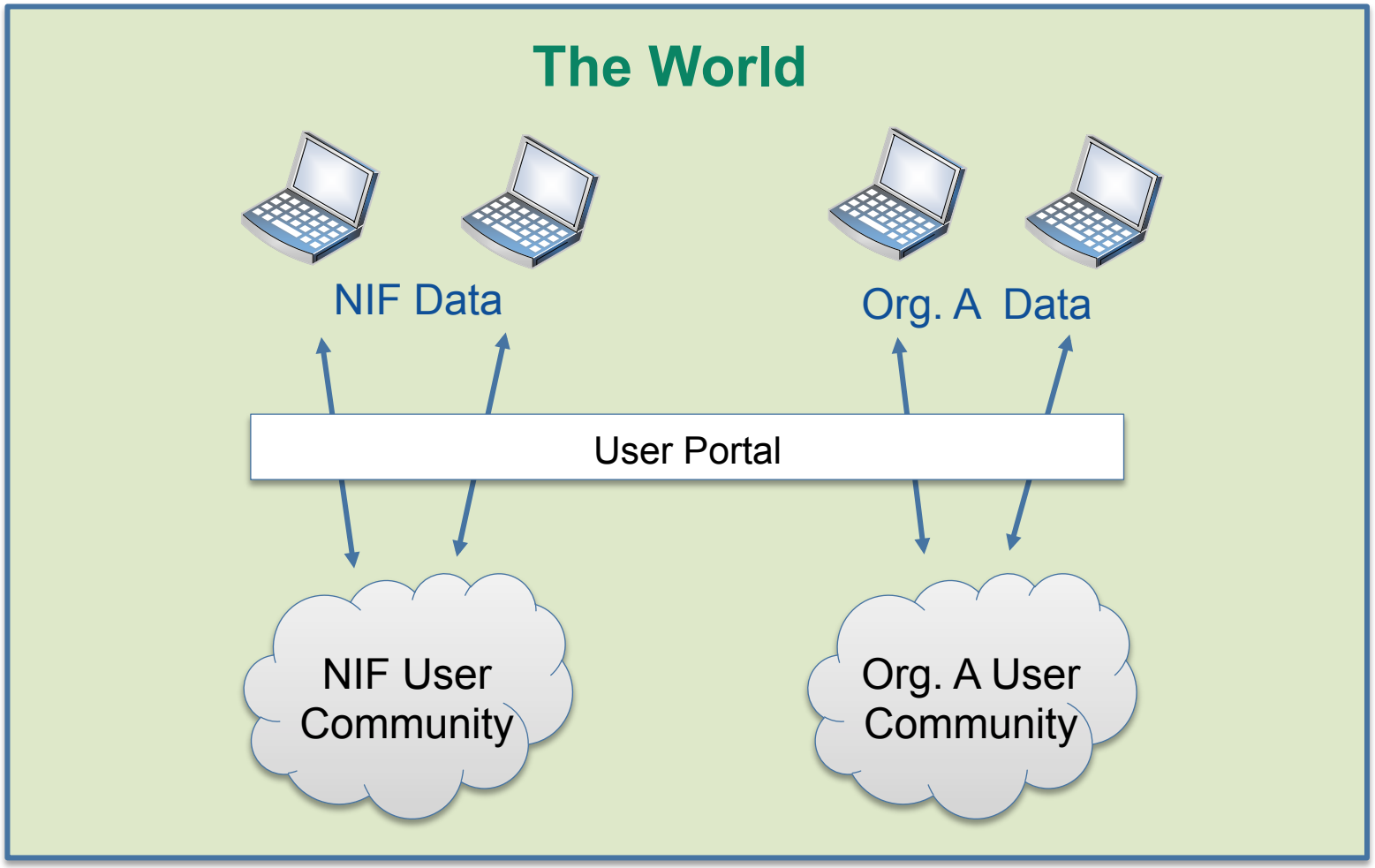
Future Work: Exploring the multi-tenant capabilities in Salesforce