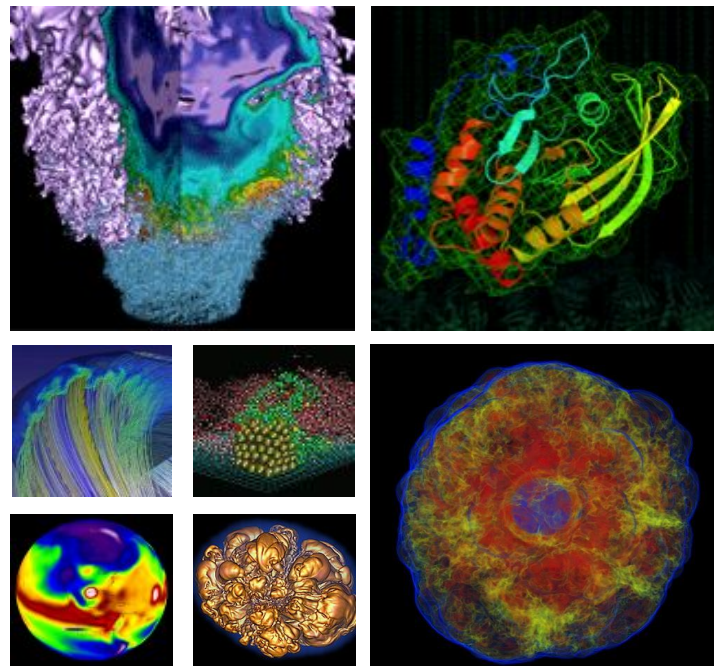


The Art of Conversation With CrayPort

Bidirectional Record Management



**Daniel Gens, Owen James,
Elizabeth Bautista, Melissa Abdelbaky**

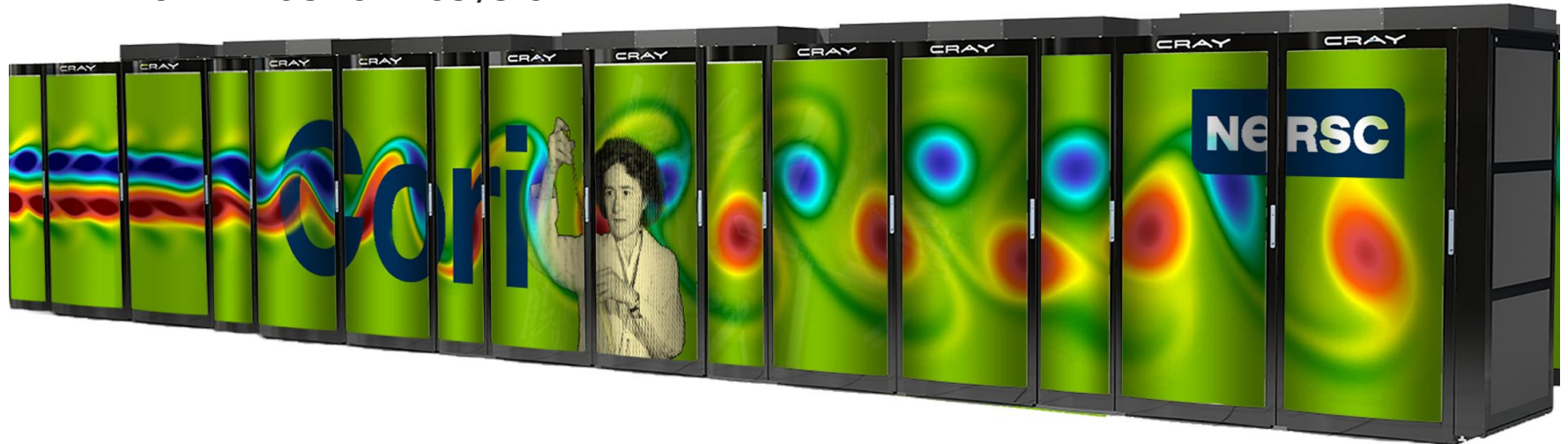
**Cray User Group
May 2019**

- NERSC is the mission HPC facility for the DOE Office of Science
- Over 7,000 Users, 870 Projects, 700 codes
- > 2000 publications per year
- 2015 Nobel Prize in Physics supported by NERSC systems and data archive
- Diverse workload type and size
 - Biology, Environment, Materials, Chemistry, Geophysics, Nuclear Physics, Fusion Energy, Plasma Physics, Computing Research
- New Experimental and AI-driven workloads

Cori - XC-40



- 2,388 Intel Xeon "Haswell" processor nodes,
- 9,688 Intel Xeon Phi "Knight's Landing" nodes
- 1.8 PB Cray DataWarp Burst Buffer
- 28 PB Lustre Filesystem



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Perlmutter - Shasta



- 3x to 4x Cori, Larger and more complex
- AMD CPU only nodes and GPU Nodes
- Slingshot interconnect
- All Flash Lustre Filesystem
- Designed for large scale simulation and data analysis from experimental facilities

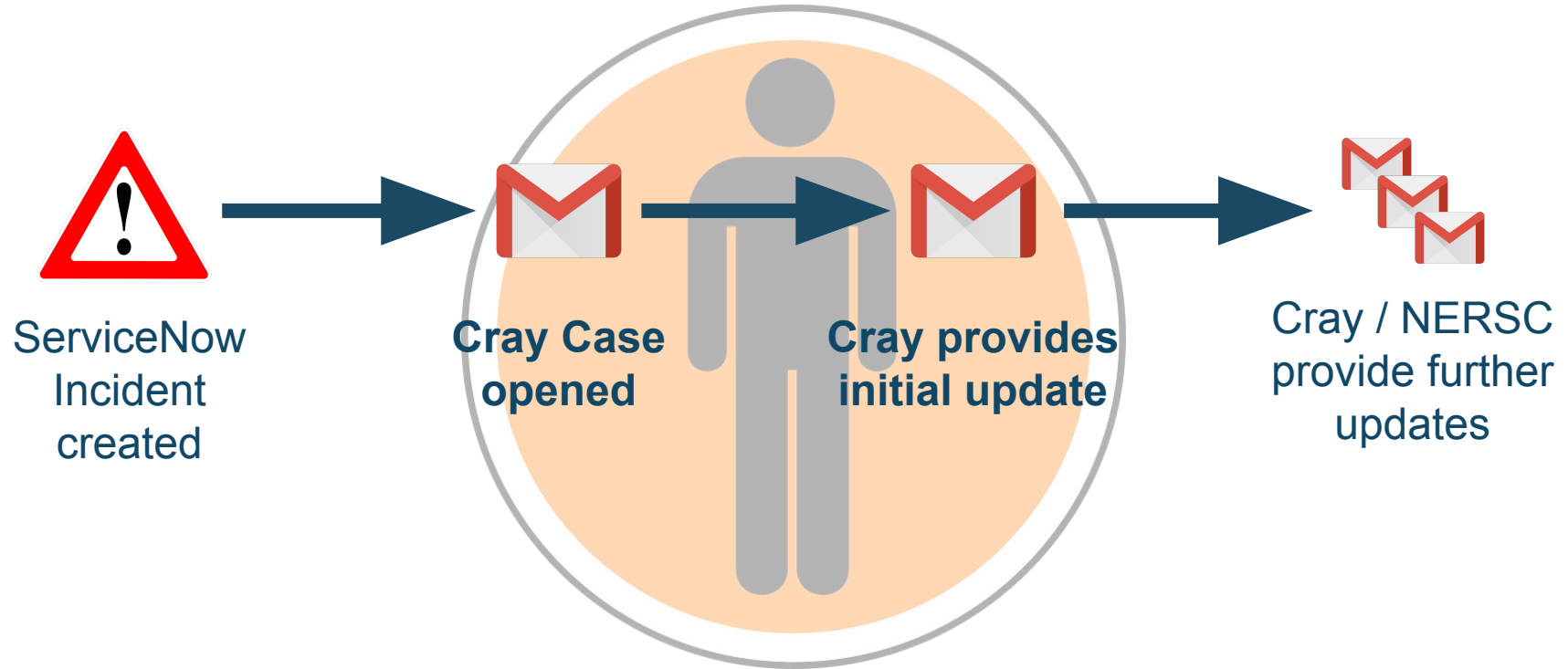


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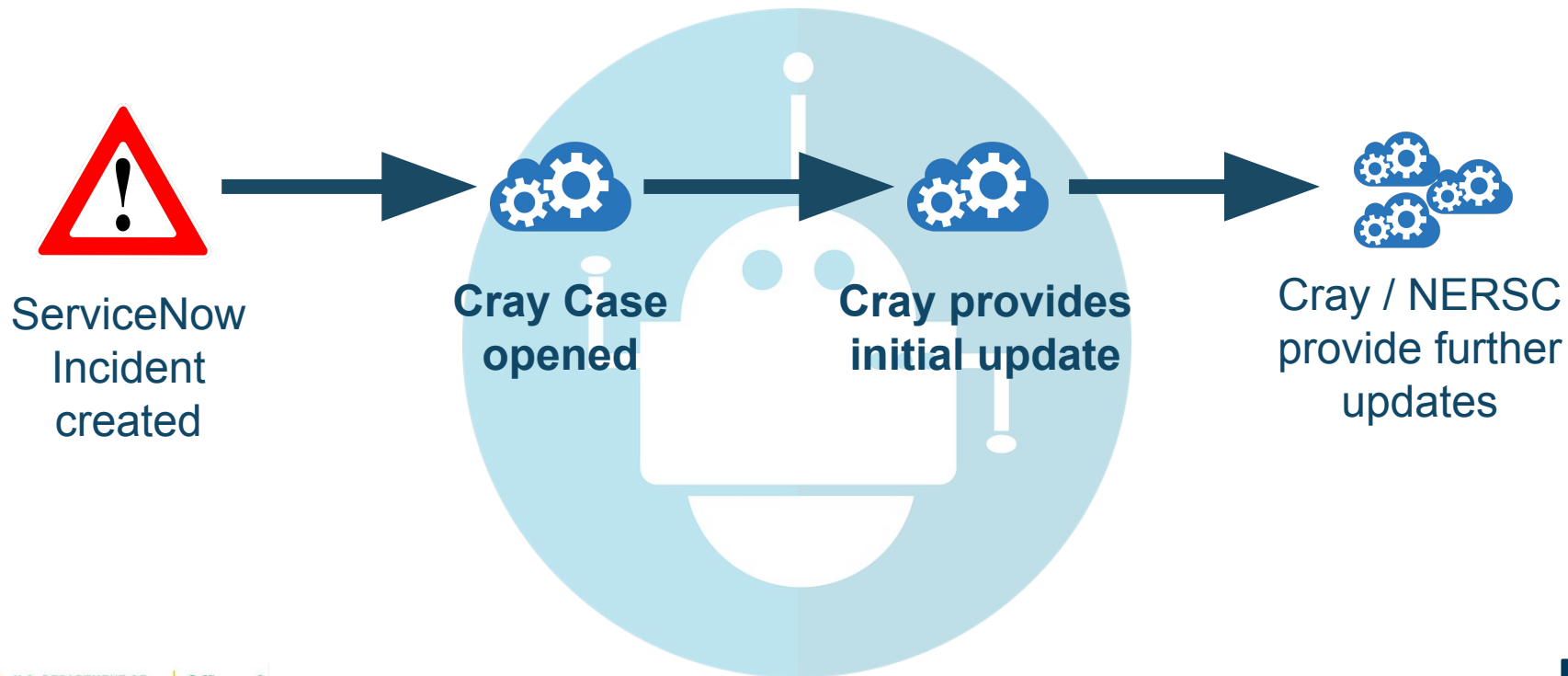
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Previous Email-Based Workflow

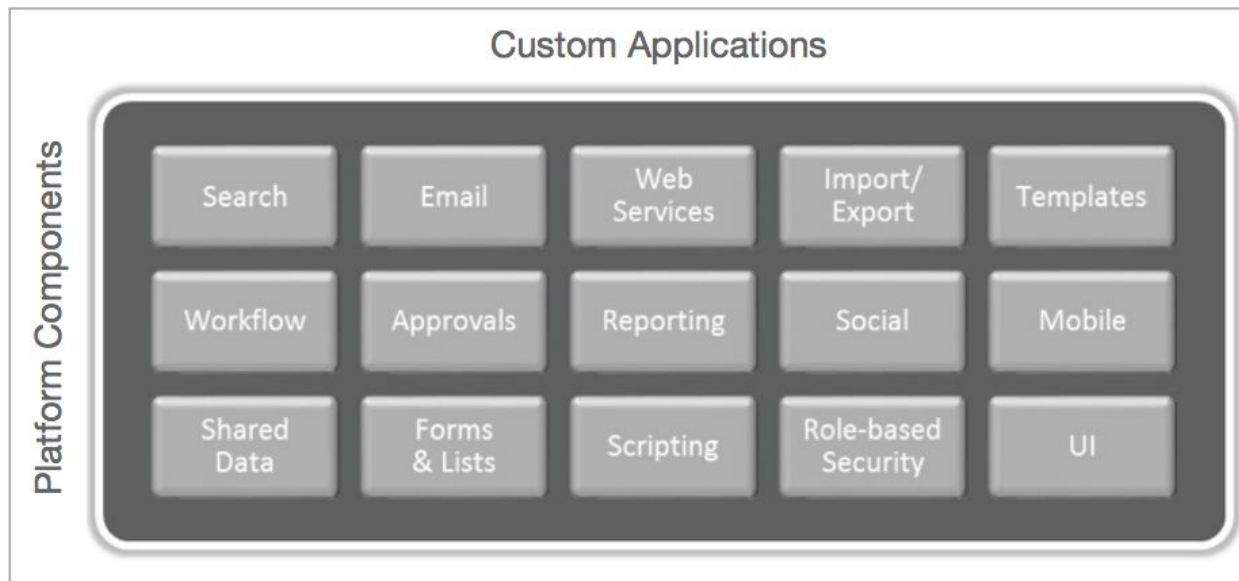


Current RESTful API-Driven Workflow





Service-Now Modules



Design and Test JSON Payloads



 **swagger**

Explore

CrayPort API

Assets V1

[Show/Hide](#) | [List Operations](#) | [Expand Operations](#)

Attachments V1

[Show/Hide](#) | [List Operations](#) | [Expand Operations](#)

Cases V1

[Show/Hide](#) | [List Operations](#) | [Expand Operations](#)

GET	/api/crayport/odata/v1/cases	Return cases
POST	/api/crayport/odata/v1/cases	Create a case
GET	/api/crayport/odata/v1/cases('{CaseNumber}')	Return a specific case
PATCH	/api/crayport/odata/v1/cases('{CaseNumber}')	Update case fields

Comments V1

[Show/Hide](#) | [List Operations](#) | [Expand Operations](#)

Part Orders V1

[Show/Hide](#) | [List Operations](#) | [Expand Operations](#)

Shipping Details V1

[Show/Hide](#) | [List Operations](#) | [Expand Operations](#)

Metadata

[Show/Hide](#) | [List Operations](#) | [Expand Operations](#)

[BASE URL: , API VERSION: V1]

JSON payload model

NERSC

GET

/api/crayport/odata/v1/cases

Return cases

POST

/api/crayport/odata/v1/cases

Create a case

Response Class (Status 201)
Created

Model | Example Value

```
{
  "CaseNumber": "12345",
  "Status": "Unassigned",
  "IsClosed": "true",
  "Subject": "Test Subject",
  "Description": "Test Description",
  "ContactEmail": "Contact@TestEmail.com",
  "AssignedTo": "TestQueue",
  "Asset": "123456789",
  "Type": "Hardware",
  "Priority": "Important",
}
```

Response Content Type | application/json

Parameters

Parameter	Value	Description	Parameter Type	Data Type
\$expand	<input type="text"/>	Expands related entities inline.	query	string
\$select	<input type="text"/>	Selects which properties to include in the response.	query	string
CrayPortCase	<div>(required) <input type="text"/></div> <div>Parameter content type: application/json</div>		body	Model Example Value

```
{
  "Subject": "Test Subject",
  "Description": "Test Description",
  "ContactEmail": "",
  "Asset": "123456789",
  "Type": "Hardware",
  "Priority": "Important",
  "PriorityChangeReason": "",
  "ExternalReference": "Test 1234"
}
```

Authorization (required)

Basic HTTP Authentication

header

string

Cray Case Class



```
CrayPortCase {  
    CaseNumber (string),  
    Status (string),  
    IsClosed (string),  
    Subject (string),  
    Description (string),  
    ContactEmail (string),  
    AssignedTo (string),  
    Asset (string),  
    Type (string),  
    Priority (string),  
    PriorityChangeReason (string),  
    Product (string),  
    Component (string),  
    Version (string),  
    BugType (string),  
    BugNumber (string),  
    BugFixedIn (string),  
    ExternalReference (string)  
}
```

Cray Clase Class in SN Studio



STUDIO File Source Control Window Search James, Owen (o1james-ADMIN)

+ Create Application File

Application Explorer

- Styles
 - x_ners2_crayport_cray_case
 - x_ners2_crayport_cray_case
 - x_ners2_crayport_cray_case
- Server Development
 - Business Rules
 - Get Incident Info
 - Get Instance Name
 - Update Cray Case with Attachment
 - Update Cray Case with Comment
 - Update new Cray Case with Comments
 - Script Includes
 - CrayCase
 - CrayportConditionChecker
 - JournalParser
 - UI Actions
 - Change Cray Case Priority
 - Link Cray Case
 - Open Cray Case
 - View Cray Case
 - Client Development
 - Client Scripts
 - Cray Case Priority Change
 - Cray Case Validation
 - Cray Form Field Settings
 - Link Cray Case
 - UI Policies
 - Add View Settings
 - Close section Visibility
 - Cray Case close info visibility
 - Cray Case section read-only
 - Priority View Settings
 - Submission View Settings
 - Visibility for Cray Case field
 - Access Control
 - Access Controls

Update Cray Case w... CrayCase Script Include

Script Include CrayCase

Name: CrayCase Application: CrayPort

API Name: x_ners2_crayport.CrayCase Accessible from: This application scope only

Client callable: ☒ Active: ☒

Description: Cray Case class definition.

Characters left: 3973

Script

```
14 var gr = new GlideRecord('incident');
15 gr.get(inc_sysID);
16
17 var cr = new GlideRecord('x_ners2_crayport_cray_case');
18 cr.get(case_sysID);
19
20 var util = new global.MyGlobalScopeUtils();
21 util.sleep(10000);
22
23 var r = new sn_ws.RESTMessageV2('x_ners2_crayport.Cases', 'POST new case');
24 r.setStringParameterNoEscape('subject', this._escapeQuotes(cr.cray_case_subject));
25 r.setStringParameterNoEscape('type', 'General Inquiry');
26 r.setStringParameterNoEscape('asset', cr.cray_asset.serial_number);
27 r.setStringParameterNoEscape('description', this._escapeQuotes(cr.description));
28 r.setStringParameterNoEscape('priority', cr.priority.getDisplayValue().toLowerCase());
29 r.setStringParameterNoEscape('inc', gr.number);
30
31 var email = gs.getUser().getEmail();
32 if (gs.getUser().isMemberOf('OTG'))
33     email = 'operator@nersc.gov';
34 r.setStringParameterNoEscape('email', email);
35
36 this._checkInstance(r);
37
38 var response = r.execute();
39 var responseBody = JSON.parse(response.getBody());
40 var httpStatus = response.getStatusCode();
```

Protection policy Read-only

CrashPort | 2.1.9 56 Files (0 unsaved)



Demo

A screenshot of a web browser displaying the "Gray Case Submission" form in the NERSC DEV NERSC Help Desk. The browser's address bar shows a URL starting with "https://nerosc-dev.berkeleylab.gov/helpdesk/". The page has a dark sidebar on the left with a "Filter navigator" and a list of menu items: "NERSC help Desk", "MCM", "ECAF Requests", "Crappert integration", "Monthly usage", "Self Service Desk", "Incident:", "Create New Incident", "Open", "Open - Unassigned", "Resolved", "Closed", "All", "Overview", and "Incident List". The main content area is titled "Gray Case Submission" and contains the following fields:

- Case Subject:** "CrayPort integration testing". A dropdown menu is open, showing options: "All Cases", "High Priority", and "Important".
- Case Asset:** "Cray". A search icon and a refresh icon are visible to the right of the input field.
- Case Priority:** A dropdown menu is open, showing options: "High Priority" and "Important".
- Parent Incident:** "INC2130551". A refresh icon is visible to the right of the input field.
- Description:** A text area containing the text "This is the public description".

Below the description field is a "Submit" button. The browser's top bar shows the user "Gang, Daniel (dygang)" and various icons for search, notifications, and settings.

Integration Advantages



- ✓ Real-time, automated record updating
- ✓ Reduced incident processing time
- ✓ Improved communication between engineering teams
- ✓ Facilitated reporting and incident review
- ✓ Secure authentication between NERSC and Cray

Current Features



- ✓ New Cray case submission
- ✓ Case Priority Change
- ✓ Case details updates
- ✓ Bidirectional Comment updates (public comments)
- ✓ Linking an existing Cray case to a ServiceNow Incident

Some Data for 2018



System	Cori	Edison
Cray cases	674	230
Projected time savings	~136 hours	~50 hours

Projection based on estimated time to open Cray case:

- ❑ Old workflow: 15 minutes
- ❑ New workflow: 2 minutes

API Publicly Available as of May 3rd



- Crayport API Info
 - <https://crayport-api.cray.com/>
- NERSC Integration Gitlab Repo
 - Source Code
 - <https://gitlab.com/crayport/crayport-code>
 - ServiceNow App
 - <https://gitlab.com/crayport/crayport-app>

Info on ServiceNow Integration



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Daniel Gens - dygens@lbl.gov

Questions



Thank You



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