Real-time Water Decision Support Services for Droughts

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Background

During 2011, Texas experienced the most serious drought in its history. Water shortages caused large loss of property and endangered lives. The importance of effective water management is magnified during droughts.

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Model as a Service (MaaS)

- Migrating environmental models from stand-alone applications to services running in the Cloud through the Web.

- Non-technical users can remotely execute the model and visualize results as a service through a simple Web interface.
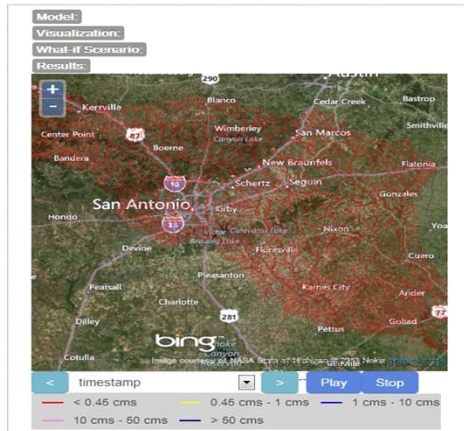
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Web Application

Real-Time Modeling Service Architecture
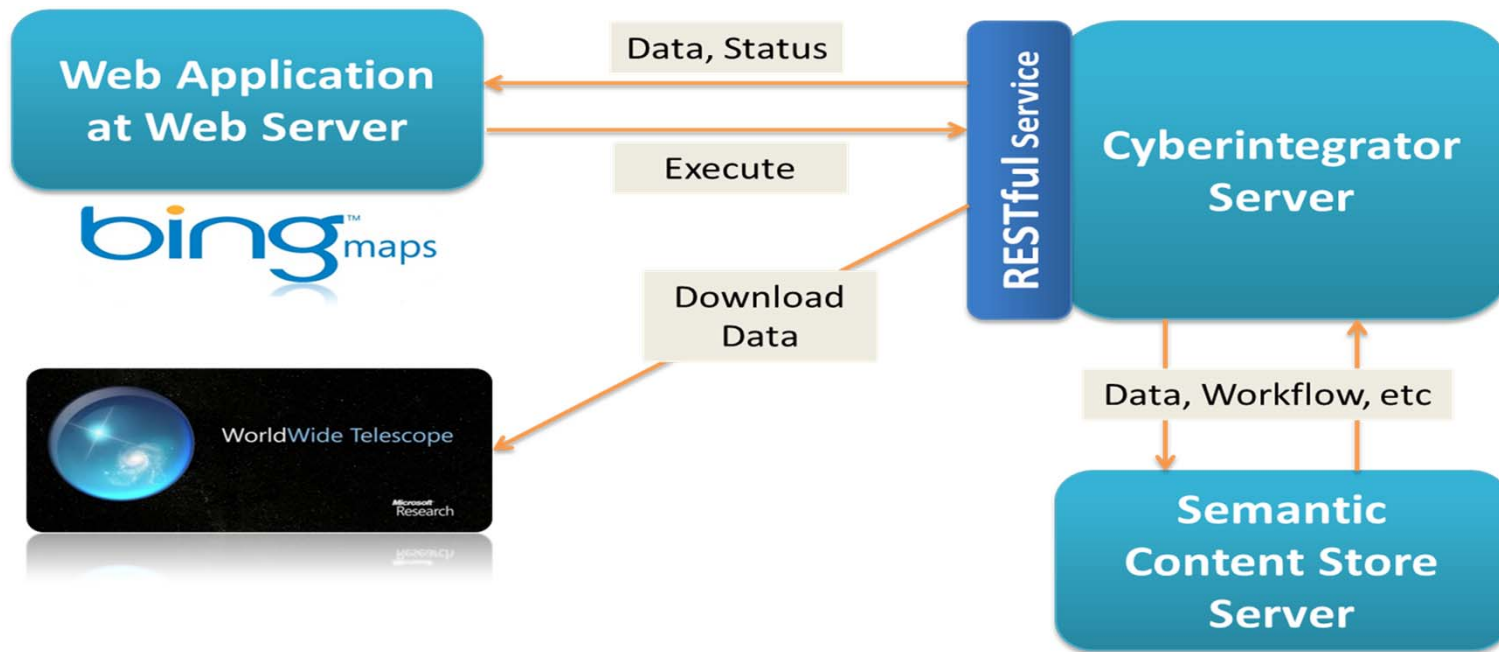
Cyberintegrator Workflow
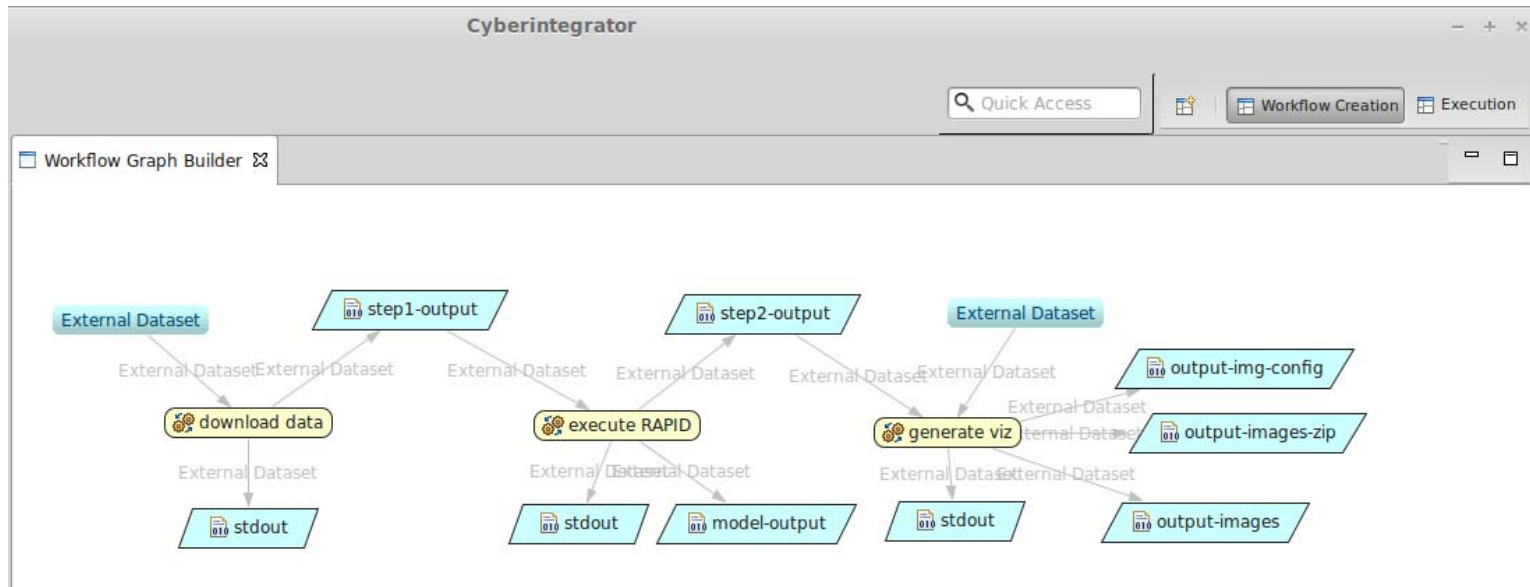
- Download NLDAS data
- Execute RAPID model
- Generate visualization (images) of the model results

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1. Define Workflow Steps

Download NLDAS data

1. Define Workflow Steps

- Define other steps the same way
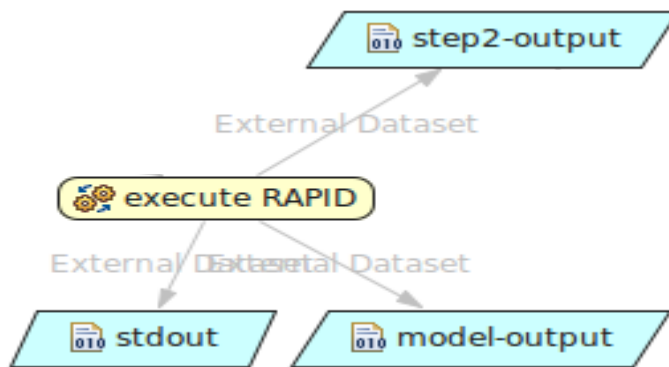
Execute RAPID model
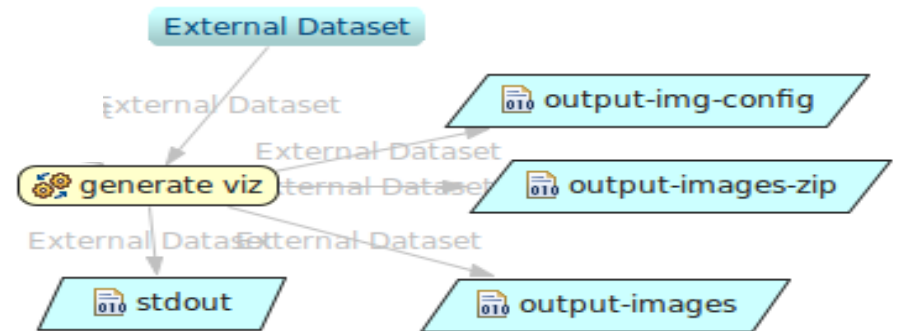
Generate visualization

2. Connect Steps: Outputs to Inputs

3. Sharing the Workflow as a Service

**Clients
(i.e. Web browser)**

**Cyberintegrator
Desktop**

3. Access the shared workflow
GET http://<hostname>/workflows

**1. Export
Workflow**

2. Upload the zip file
POST http://<hostname>/workflows

Workflow.zip

RESTful Service

**Cyberintegrator
Server**
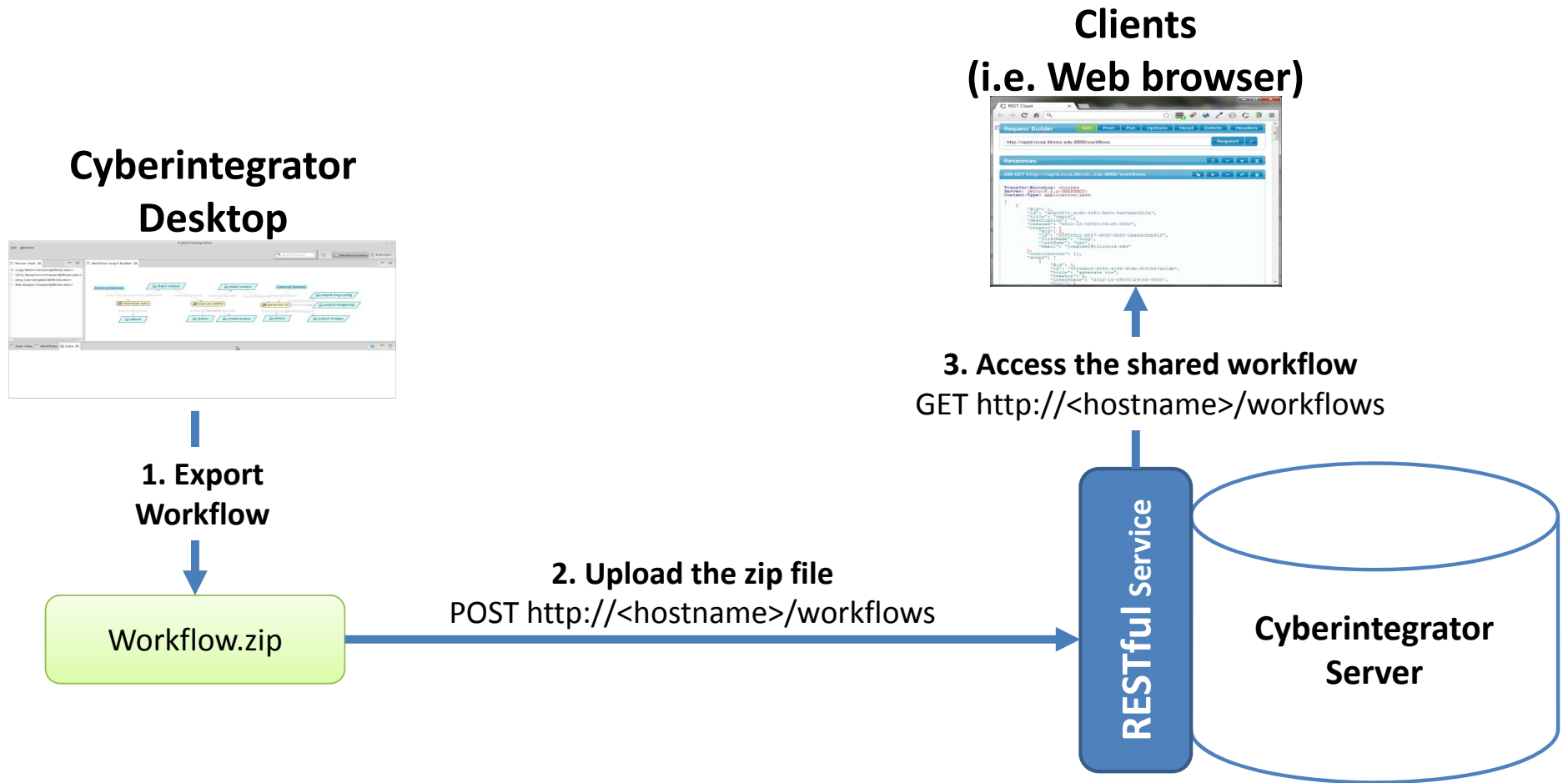
Future Work

- Add more real-time data sources and assimilate into land-atmosphere and river flow models to achieve real-time water modeling system.
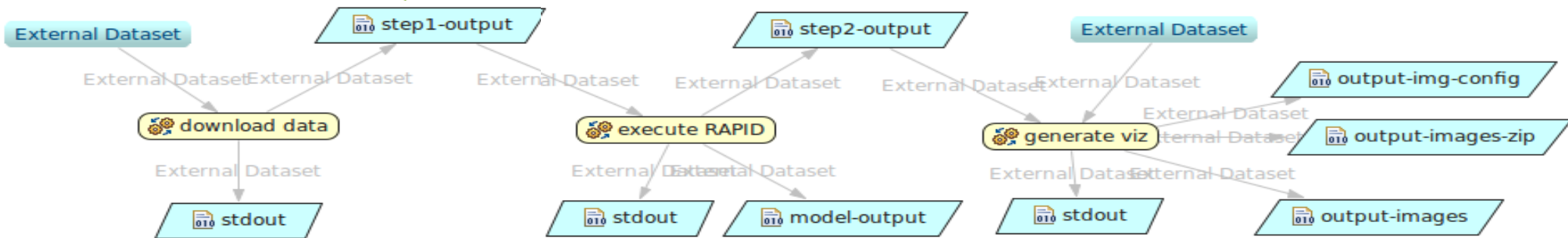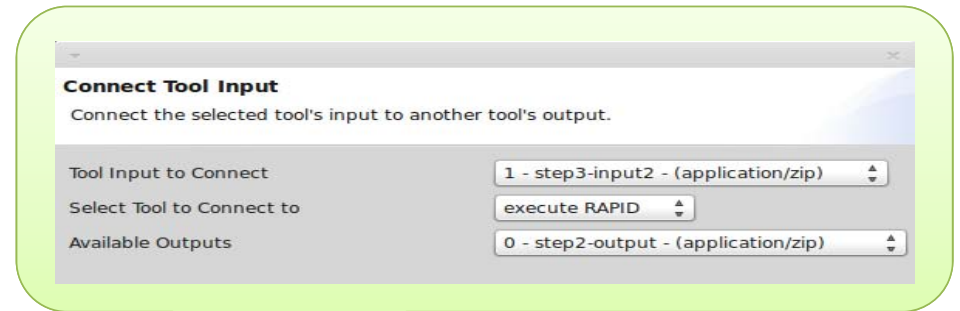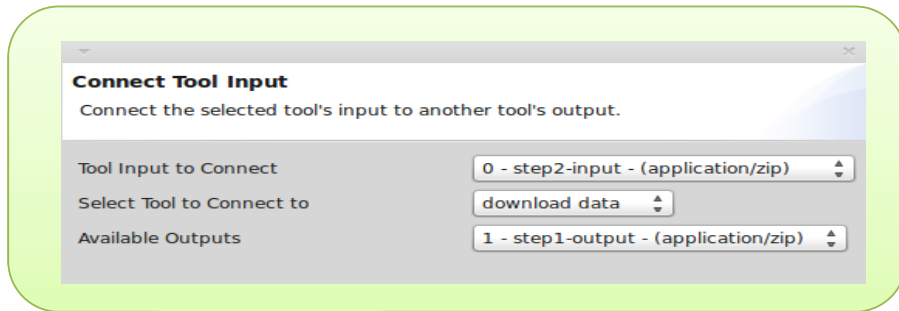
- Develop the optimization model to provide curtailment hours of each water user for decision makers from TCEQ during droughts.

- Link the workflow system of the optimization model with the RAPID model system to provide real-time water decision support services.

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