Scenario 4:
Data mine streaming radar data and on trigger launch a forecast workflow.

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Notions in Diagrams

• Connectors
  – One sided solid arrow – SOAP Request or SOAP response
  – Two sided solid arrow – SOAP Request & Response (either synchronous or asynchronous)
  – Dashed one side arrow – WS-Event publish or subscribe

• Numbering
  – Numbers 1, 2, 3... Control flow of Request/Response actions.
  – Prefix (1a, 1b, 1c..) After a asynchronous request if a service contacts a different service before responding to the request then the subsequent services actions will be numbered with prefixes.
  – A, B, C ... Actions which occur periodically independent of scenarios
Scenario 4: Triggered Workflow Execution

1. Start with MyLEAD Server

2. Proceed to MyLEAD Agent

3. Move to GPEL

4. Examine Workflow Configuration Service

5. Engage Data Catalog

6. Consult Calder Planner

7. Call Quoblets

8. Use TDS and Storage Resources (Community Data)

9. Execute Forecast Workflow (Use Case 3 – Execute Workflow Steps 7 through 9)

Repeat Steps 7 to 9 for every service in the workflow.
Use Case: Experiment Execution

• Assumptions:
  – User has requested a portal account and has been approved.
  – User has logged into the portal and can browse their workspace.
  – User has permissions to run a workflow.
  – User has access permissions to each service in the workflow.

• Select and Configure Workflow:
  1. Portal (Experiment Builder) contacts myLEAD agent to get a list of workflows accessible by user.
     1a: myLEAD Agent contacts myLEAD server to fetch workflow collections under the specified project and propagates back to portal.
  2. Portal fetches the control workflow (dynamic workflow) from GPEL using the workflow template id and parses through inputs and prompts user for inputs.
  3. Portal builds the soap input to control workflow and invokes the workflow to GPEL Engine.
• Register inputs with myLEAD & Launch Workflow:

4. GPEL engine invokes Calder Planner service with user inputs of data mining algorithm, time to monitor stream and thresholds to trigger.
   4a: Calder service executes quoblets which execute the dataming algorithm on input data streams.
   4b: When a threshold criteria is met or time to monitor expires, Calder service sends an event about trigger or time out over event channel which GPEL is subscribe to.

5. GPEL contacts Workflow Configuration Service to configure inputs for the forecast workflow.
   5a: WCS parses workflow inputs and queries Data Catalog for latest available input data based on annotated workflow input metadata.

6. WCS builds the SOAP input and Launches forecast workflow to GPEL Engine.

7. GPEL engine invokes each service based on data dependencies.
   (Please refer to Use Case 3 document as Steps from 7 through 9 are same as Execute Workflow)