National Hydro Network Schema Design

Call for Feedback

May 2021

Natural Resources Canada | Ressources naturelles Canada

Canada

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4DM

Providing solutions through mapping technology...

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Early 2000s

NHN is developed and approved by Provinces and Territories

2017

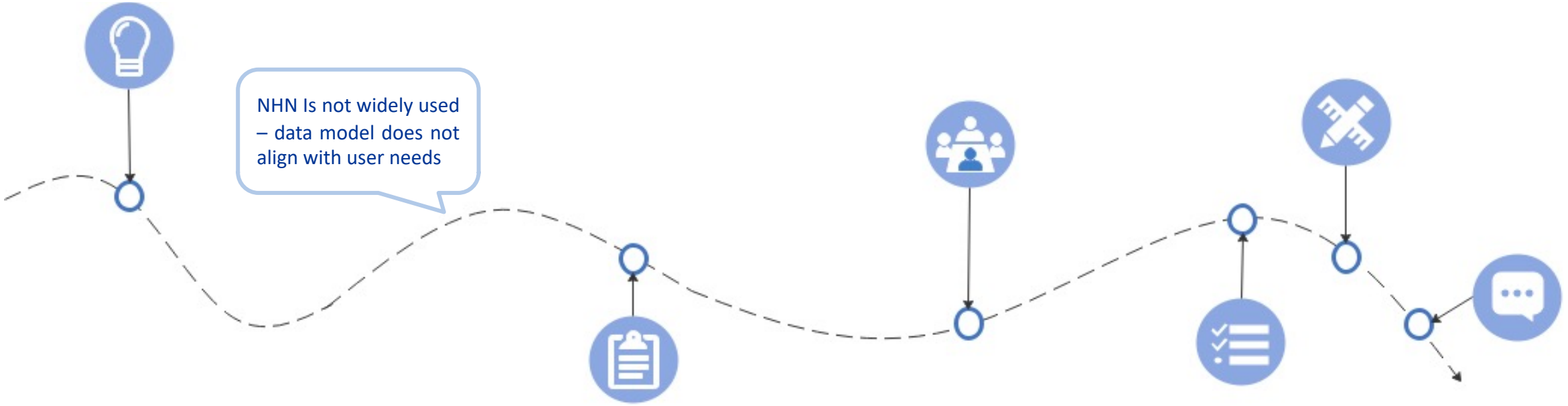
Begin development of CHyF: an OGC-compliant data model that leverages graph theory

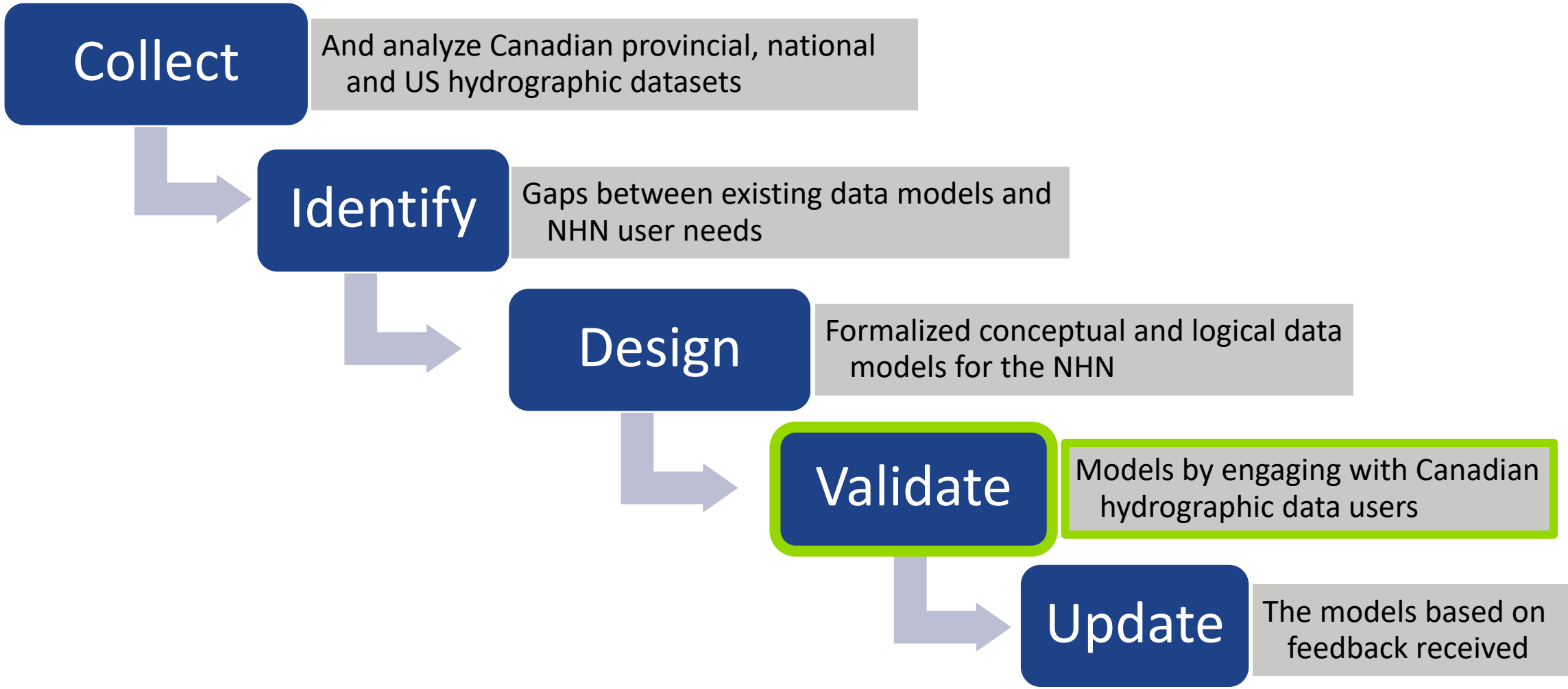
2020

National consultation process to collect data model requirements

2021

Engage with practitioners to design conceptual/logical data models for **NHNv2**




Collect
And analyze Canadian provincial, national and US hydrographic datasets
Identify
Gaps between existing data models and NHN user needs
Design
Formalized conceptual and logical data models for the NHN
Validate
Models by engaging with Canadian hydrographic data users
Update
The models based on feedback received

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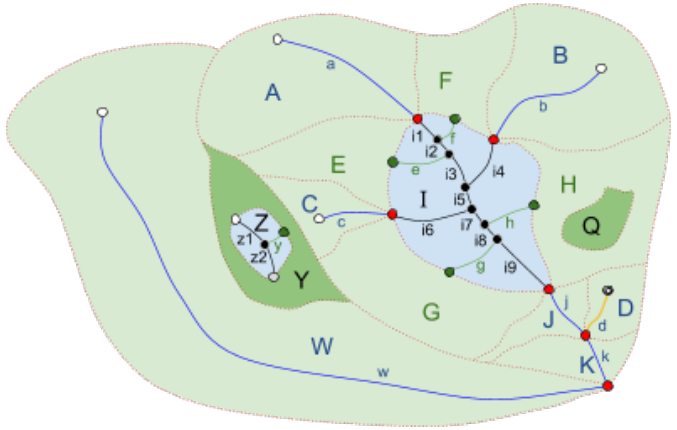
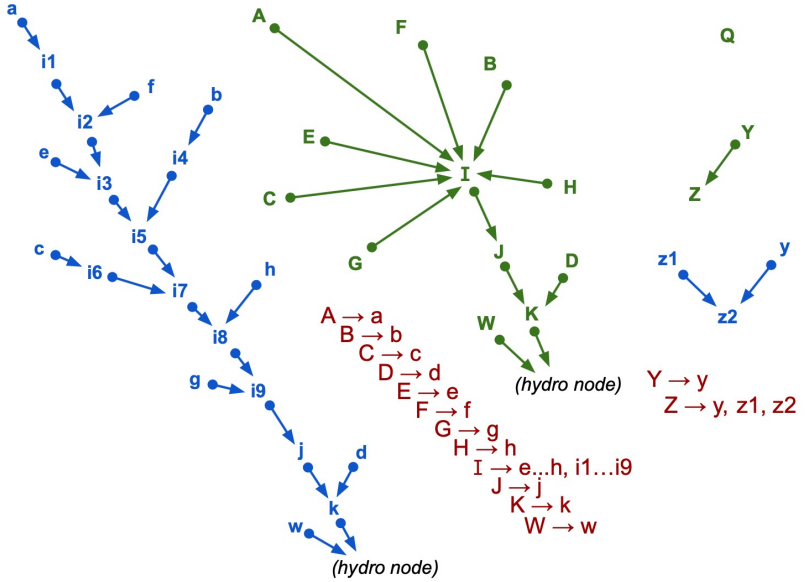
- The CHyF project presents a technique for representing catchments and flowpaths as a Directed Acyclic Graph.
- This enables rapid identification of connectivity enabling upstream and downstream areas to be calculated.
- By implementing all necessary concepts including hydro nodes, catchments and flowpaths the NHNv2 model will enable this functionality.



A cartographic representation of catchments, hydro nodes and flowpaths.



Representation of the same area in graph format.

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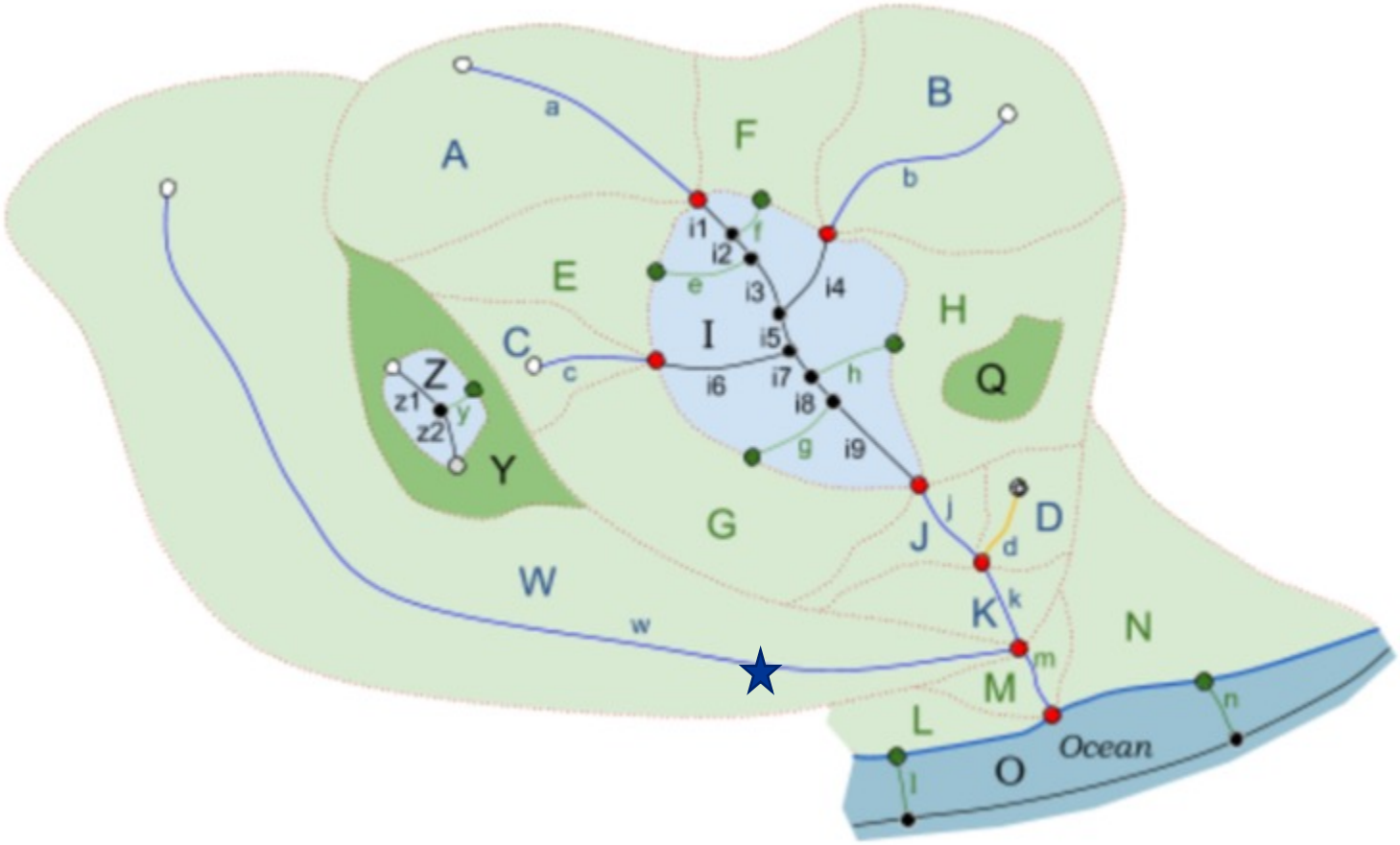
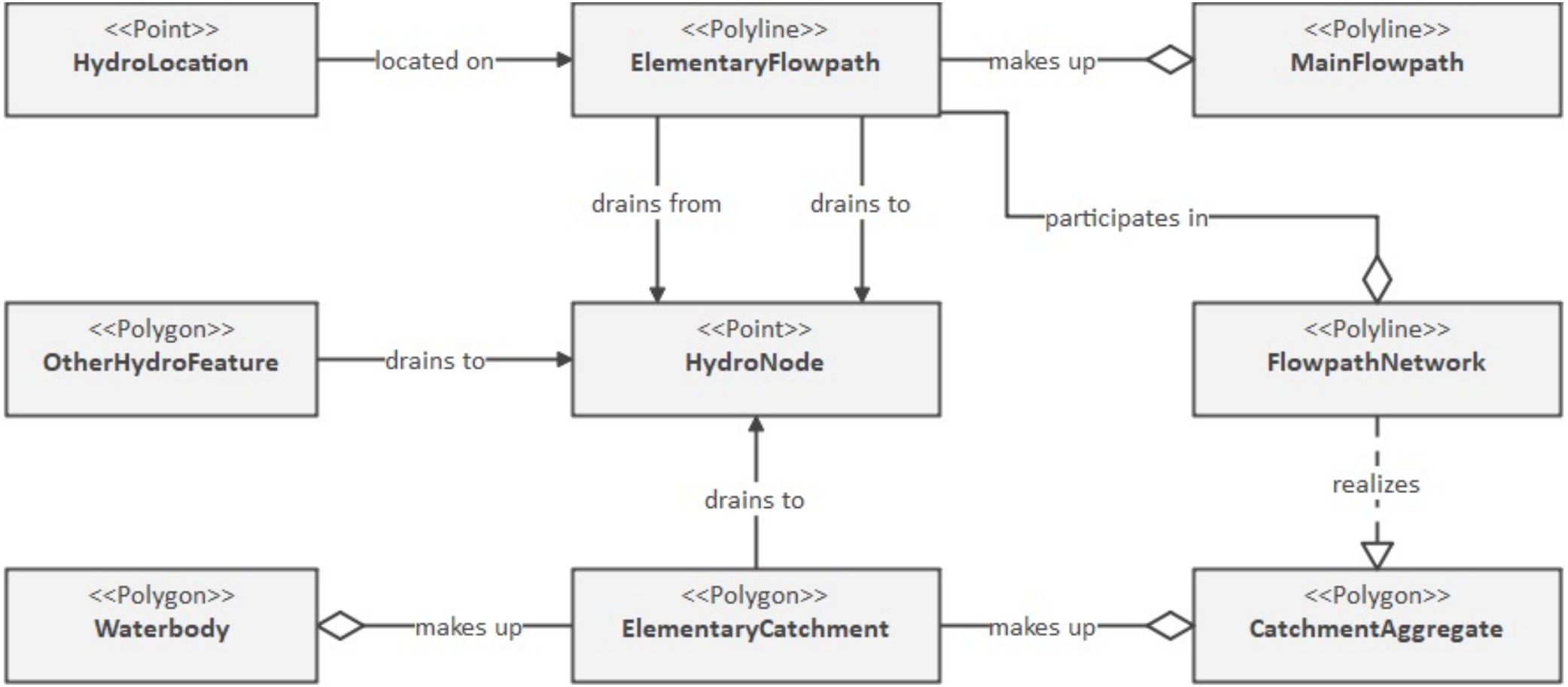
Core Features

- Elementary Catchments
- Elementary Flowpaths
- Hydro Node
- Waterbody
- Hydro location

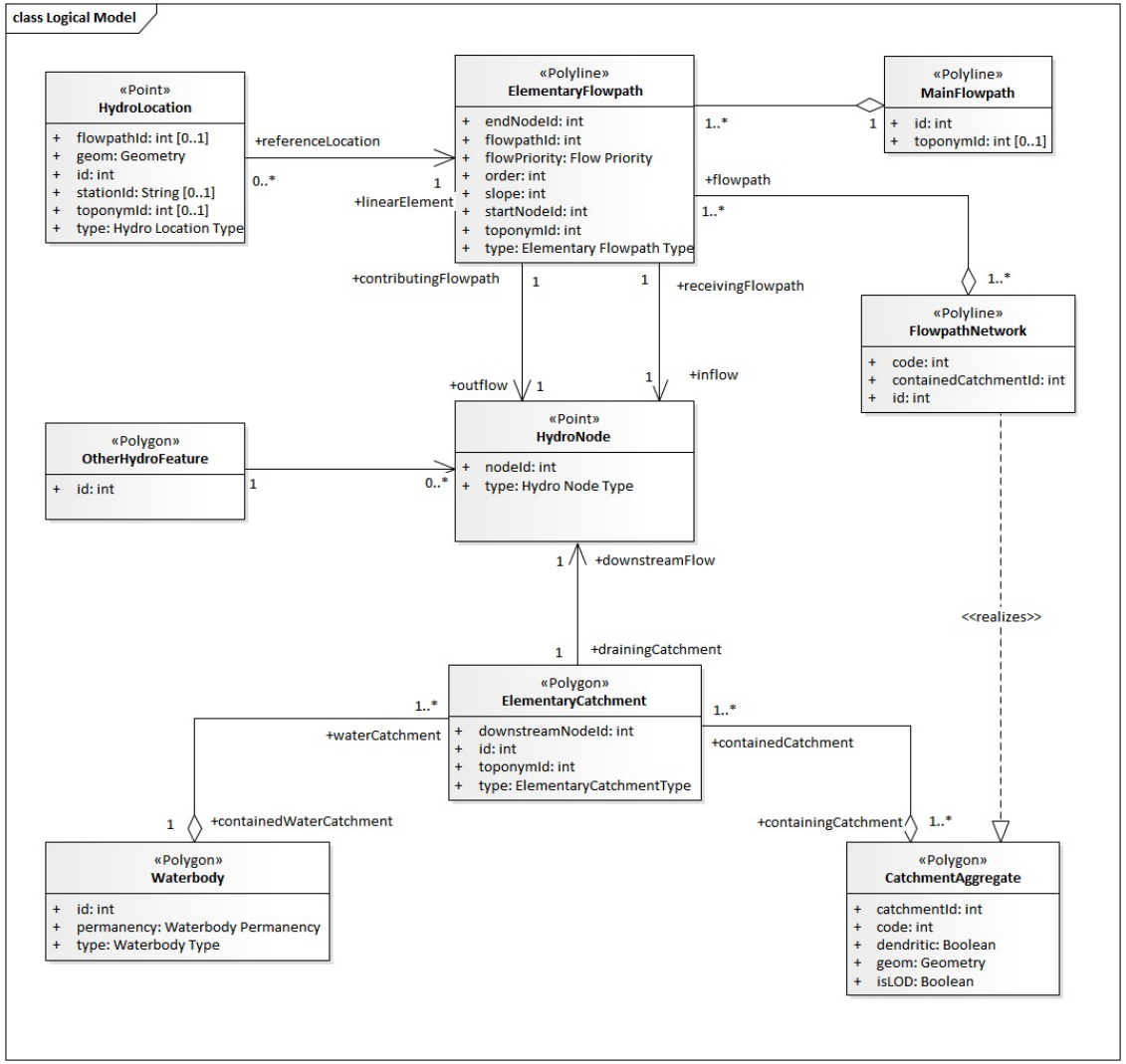
Aggregated Features

- Flowpath Network
- Catchment Aggregate
- Main Flowpath




<<Point>>
HydroLocation
located on
<<Polyline>>
ElementaryFlowpath
makes up
<<Polyline>>
MainFlowpath
drains from
drains to
participates in
<<Polygon>>
OtherHydroFeature
drains to
<<Point>>
HydroNode
<<Polyline>>
FlowpathNetwork
drains to
realizes
<<Polygon>>
Waterbody
makes up
<<Polygon>>
ElementaryCatchment
makes up
<<Polygon>>
CatchmentAggregate

- Proposed features are fully described in the logical model
  - Properties
  - Property Data Types
  - Coded Value Domains
    - E.g. ElementaryCatchmentType
  - Property Multiplicity
  - Feature Relationships
  - Relationship Multiplicities



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Thank you!

We are looking forward to your feedback