Questions and proposed changes to EI Feedback schema and services
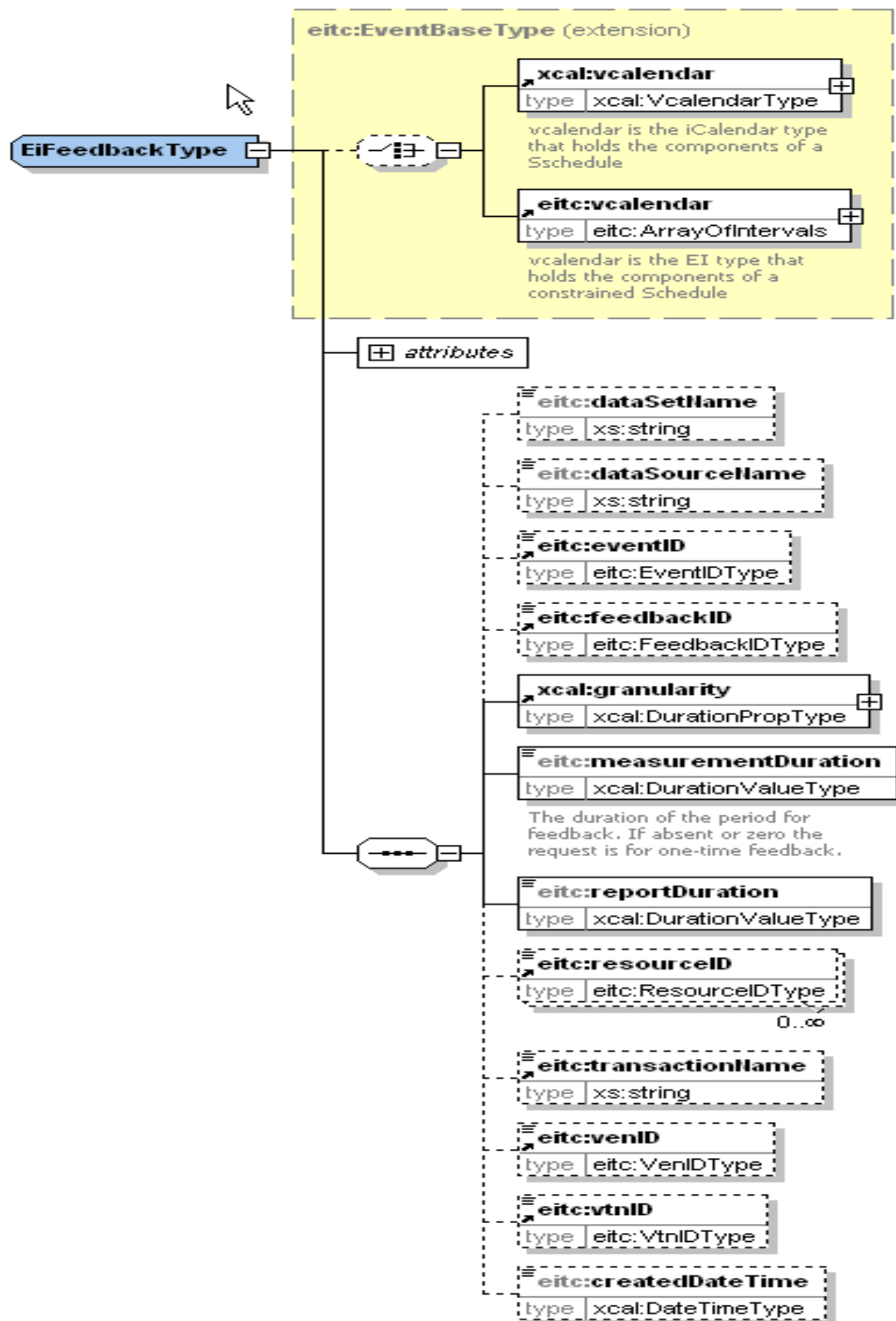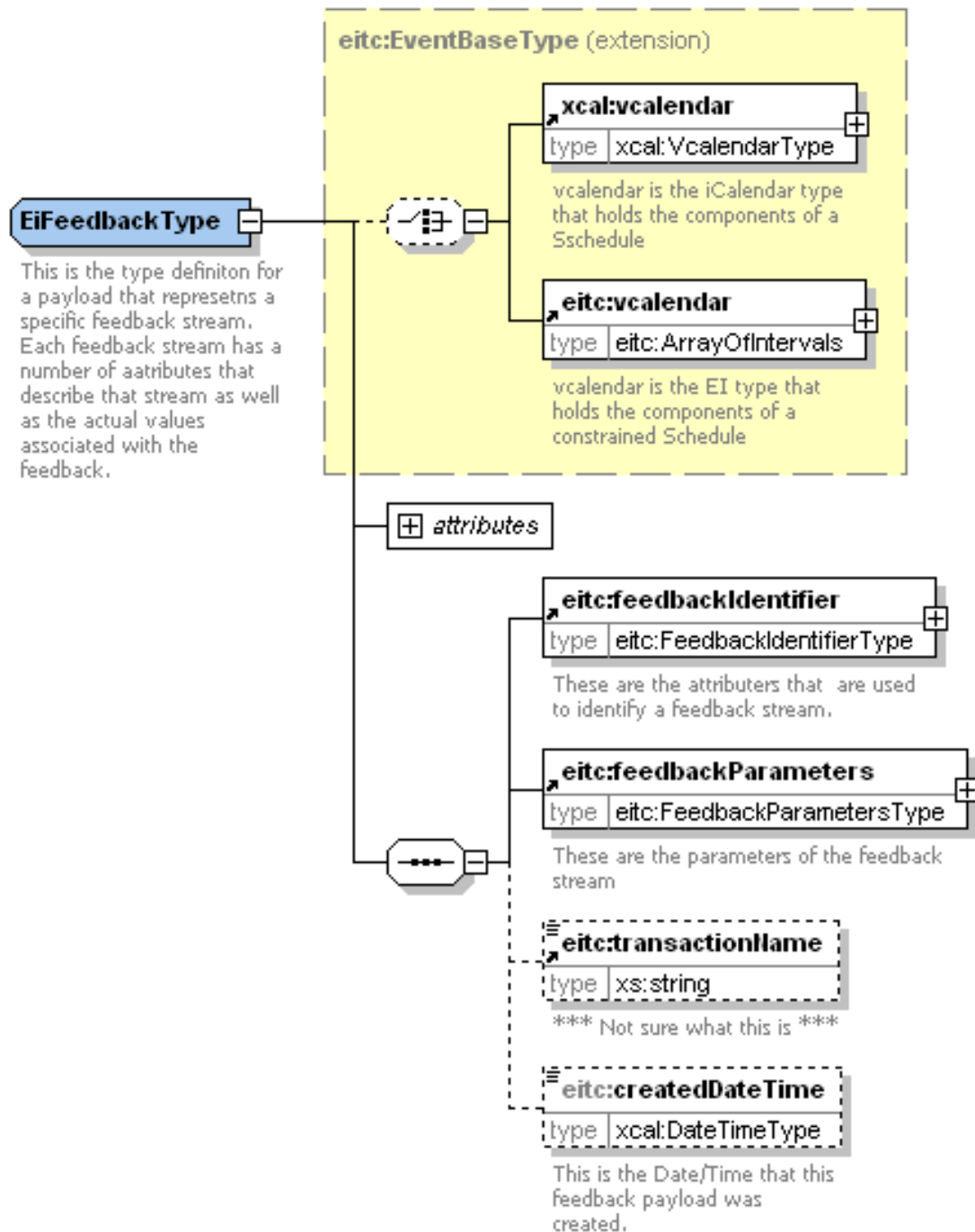
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This document contains a number of proposals and questions regarding the attributes and services related to Feedback. This document does not cover how the feedback data elements will be attached to calendar objects to create a collection of time sequenced values. That aspect of the schema is being investigated through a related effort by Bill Cox.

This document assumes that there is a notion of a "feedback stream" wherein each feedback stream represents a collection of values with the following attributes:
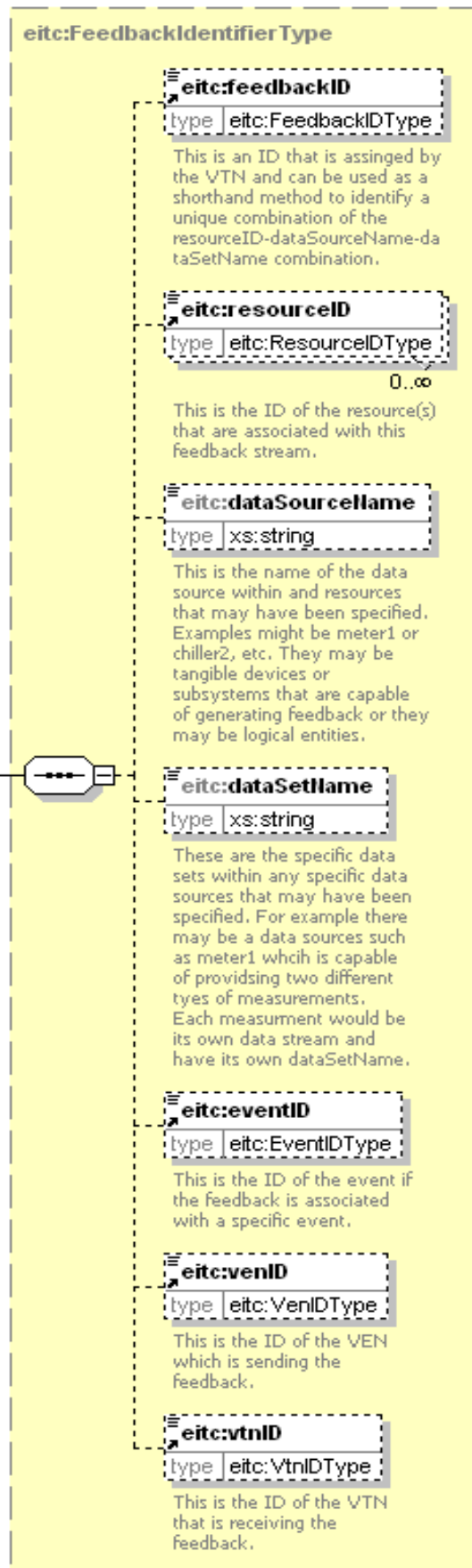
- All the values within a single stream have the same source which can be uniquely identified within a VEN by a heirarchy of identifiers that include:
    - Resource and/or VEN identifier
        - data source identifier
            - data set identifier

- A feedback stream message may contain a collection of values wherein each value in the collection is referred to as a data point. Each collection of data points has the following characteristics
    - It can be a single data point or a collection of data points
    - Each data point has a date/time associated with it
    - The data points can be in the past, present, or future
    - The collection of data points can be periodic or aperiodic
    - Each data point can be associated with either a specific point in time or an interval of time
    - All the data points in the collection are of the same type and units.
    - Each data point may be a measured value or it may be derived or calculated

- There are both PUSH and PULL patterns for exchanging feedback streams

eitc:EventBaseType (extension)

xcal:vcalendar
| type | xcal:VcalendarType |

vcalendar is the iCalendar type that holds the components of a Sschedule

eitc:vcalendar
| type | eitc:ArrayOfIntervals |

vcalendar is the EI type that holds the components of a constrained Schedule

EiFeedbackType

⊞ *attributes*

eitc:dataSetName
| type | xs:string |

eitc:dataSourceName
| type | xs:string |

eitc:eventID
| type | eitc:EventIDType |

eitc:feedbackID
| type | eitc:FeedbackIDType |

xcal:granularity
| type | xcal:DurationPropType |

eitc:measurementDuration
| type | xcal:DurationValueType |

The duration of the period for feedback. If absent or zero the request is for one-time feedback.

eitc:reportDuration
| type | xcal:DurationValueType |

eitc:resourceID
| type | eitc:ResourceIDType |

0..∞

eitc:transactionName
| type | xs:string |

eitc:venID
| type | eitc:VenIDType |

eitc:vtnID
| type | eitc:VtnIDType |

eitc:createdDateTime
| type | xcal:DateTimeType |

Current Feedback Schema from PR2

eitc:EventBaseType (extension)

EiFeedbackType

This is the type definiton for a payload that represetns a specific feedback stream. Each feedback stream has a number of aatributes that describe that stream as well as the actual values associated with the feedback.

xcal:vcalendar

type | xcal:VcalendarType

vcalendar is the iCalendar type that holds the components of a Sschedule

eitc:vcalendar

type | eitc:ArrayOfIntervals

vcalendar is the EI type that holds the components of a constrained Schedule

attributes

eitc:feedbackIdentifier

type | eitc:FeedbackIdentifierType

These are the attributers that are used to identify a feedback stream.

eitc:feedbackParameters

type | eitc:FeedbackParametersType

These are the parameters of the feedback stream

eitc:transactionName

type | xs:string

*** Not sure what this is ***

eitc:createdDateTime
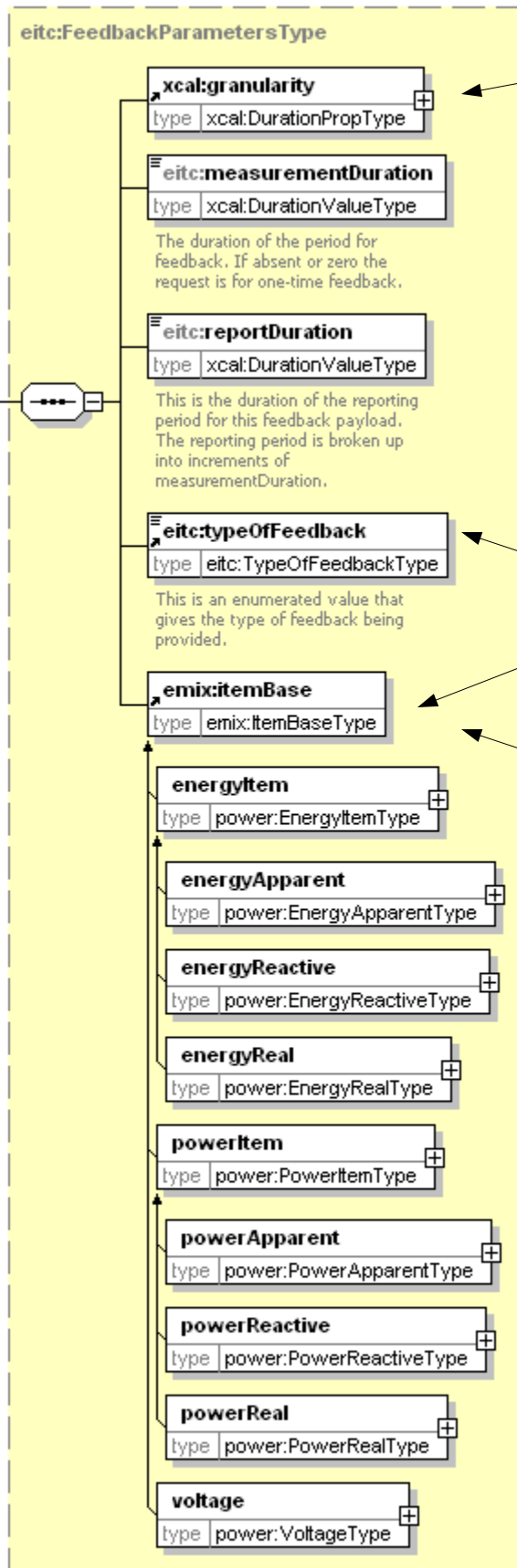
type | xcal:DateTimeType

This is the Date/Time that this feedback payload was created.

Proposed top level refactoring of attributes. Basically grouped together attributes of a like nature in the feedbackIdentifier and the feedbackParameters for better readability, although this refactoring may prove useful if and when we decide to support configuration operations.

eitc:FeedbackIdentifierType

eitc:feedbackID

| type | eitc:FeedbackIDType |

This is an ID that is assinged by the VTN and can be used as a shorthand method to identify a unique combination of the resourceID-dataSourceName-dataSetName combination.

eitc:resourceID

| type | eitc:ResourceIDType |

0..∞

This is the ID of the resource(s) that are associated with this feedback stream.

eitc:dataSourceName

| type | xs:string |

This is the name of the data source within and resources that may have been specified. Examples might be meter1 or chiller2, etc. They may be tangible devices or subsystems that are capable of generating feedback or they may be logical entities.

feedbackIdentifier

| type | eitc:FeedbackIdentifierType |

These are the attributers that are used to identify a feedback stream.

eitc:dataSetName

| type | xs:string |

These are the specific data sets within any specific data sources that may have been specified. For example there may be a data sources such as meter1 whcih is capable of providsing two different tyes of measurements. Each measurment would be its own data stream and have its own dataSetName.

eitc:eventID

| type | eitc:EventIDType |

This is the ID of the event if the feedback is associated with a specific event.

eitc:venID

| type | eitc:VenIDType |

This is the ID of the VEN which is sending the feedback.

eitc:vtnID

| type | eitc:VtnIDType |

This is the ID of the VTN that is receiving the feedback.

Feedback stream identifiers

Feedback stream parameters

Possible attribute used to reflect the type of feedback.

Question: Is this attribute necessary or is it part of a dataset naming convention?


```
<xs:simpleType name="FeedbackEnumeratedType">
        <xs:annotation>
                <xs:documentation>Enumerated Feedback types</xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:token">
                <xs:enumeration value="usage"/>
                <xs:enumeration value="demand"/>
                <xs:enumeration value="setPoint"/>
                <xs:enumeration value="deltaUsage"/>
                <xs:enumeration value="deltaSetPoint"/>
                <xs:enumeration value="deltaDemand"/>
                <xs:enumeration value="baseLine"/>
                <xs:enumeration value="deviation"/>
                <xs:enumeration value="avgUsage"/>
                <xs:enumeration value="avgDemand"/>
                <xs:enumeration value="operatingState"/>
        </xs:restriction>
                                </xs:simpleType>
```
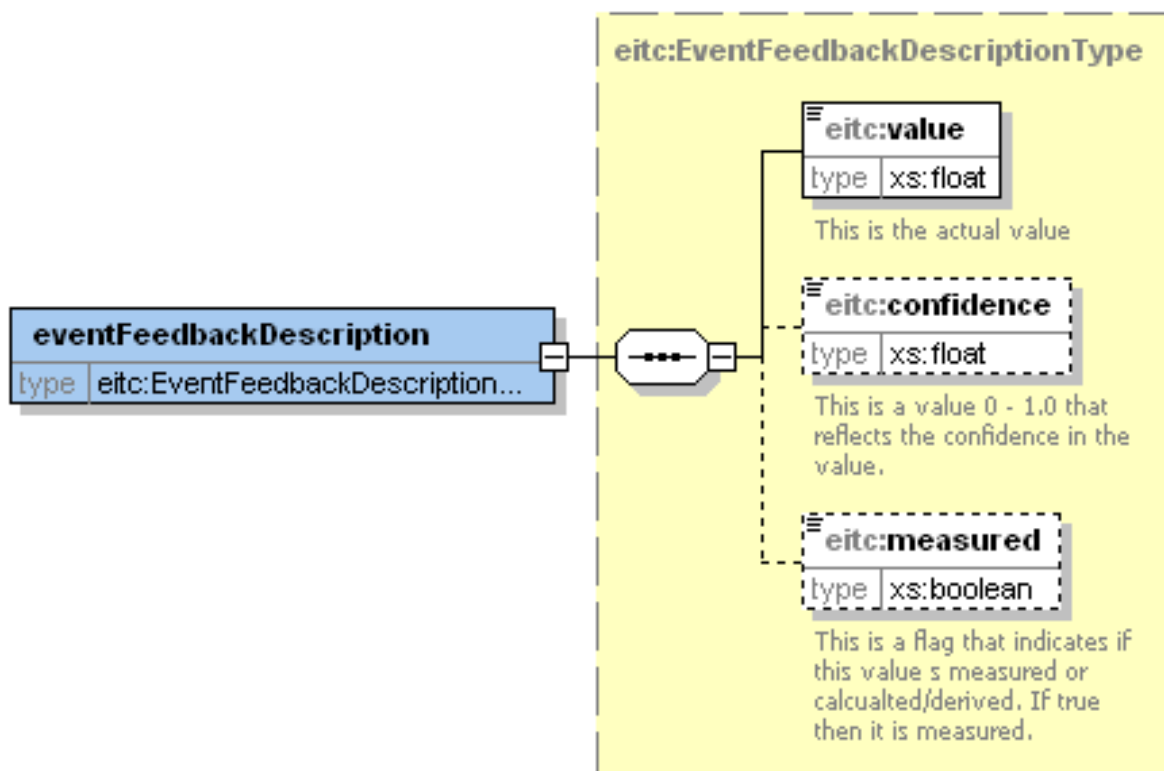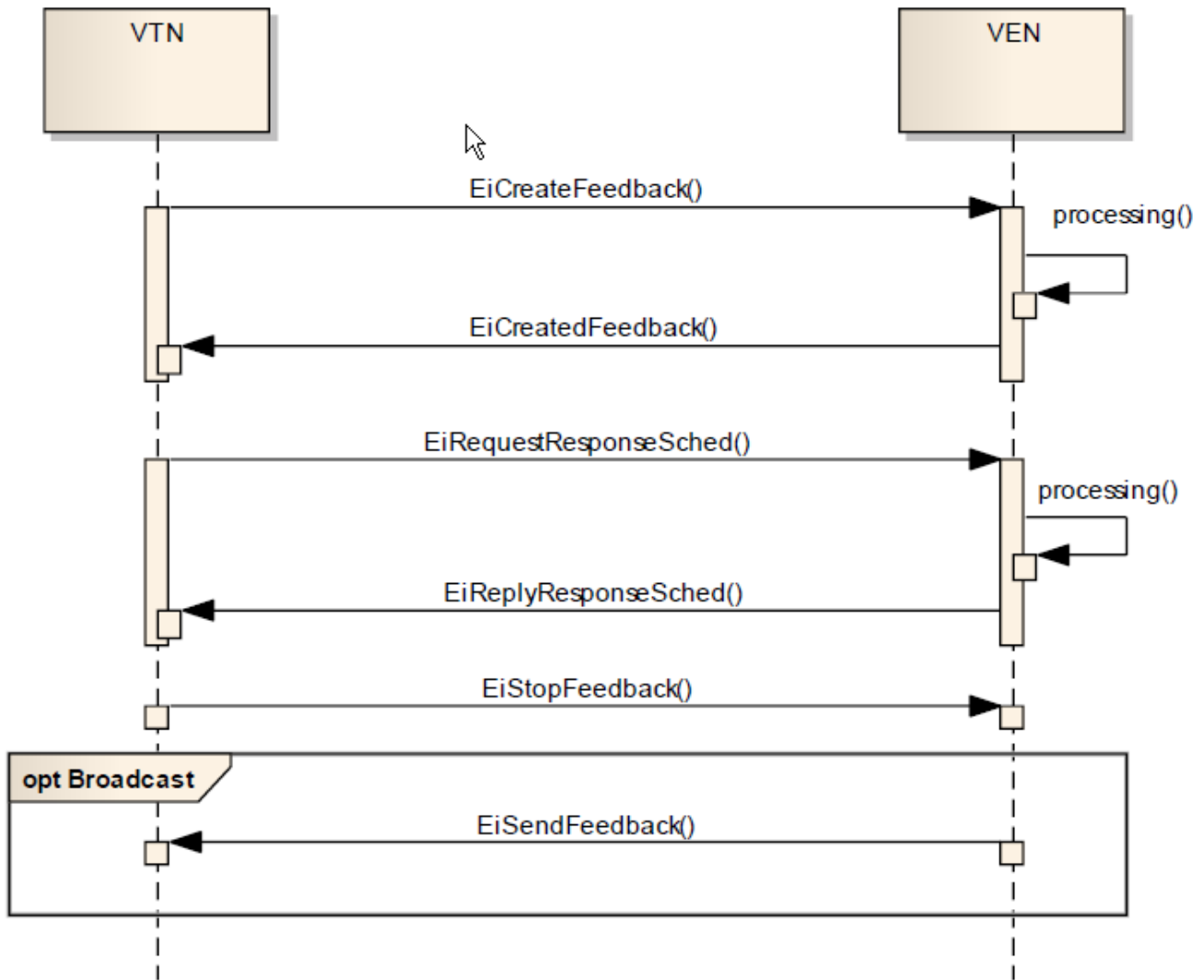
Proposed feedback data element to be attached to the schedule components

Question: Is simple float data type adequate?

Question: Are the confidence and measured attributes per data point or are the attributes of the entire collection and thus should be moved into the parameters section?

Interaction Patterns Notes:

- I think that response schedules are just a type of Feedback and since we need a general request mechanism for feedback I propose we change the name of the EiRequestResponseSched and EiReplyResponseSched to just EiRequestFeedback and EiReplyFeedback.

- I propose we add an optional response to the EiSendFeedback

Question: If we have a generalized feedback mechanism and we have a push/pull pattern for the feedback, I'm not sure what the purpose of the EiCreateFeedback operation is.

Question: Do we need a mechanism for configuring the Feedback streams in version 1.0? If yes then we need to discuss in much more detail since there are a number of different ways it could be done. For example we need to decide if we are going to support some sort of capability for the VEN to publish its feedback streams followed by some sort of configuration mechanism. If we do support these mechanisms then do we need to support both a PUSH and PULL model for that configuration?