Path Energy Traffic Ratio API (PETRA)

draft-petra-green-api-03

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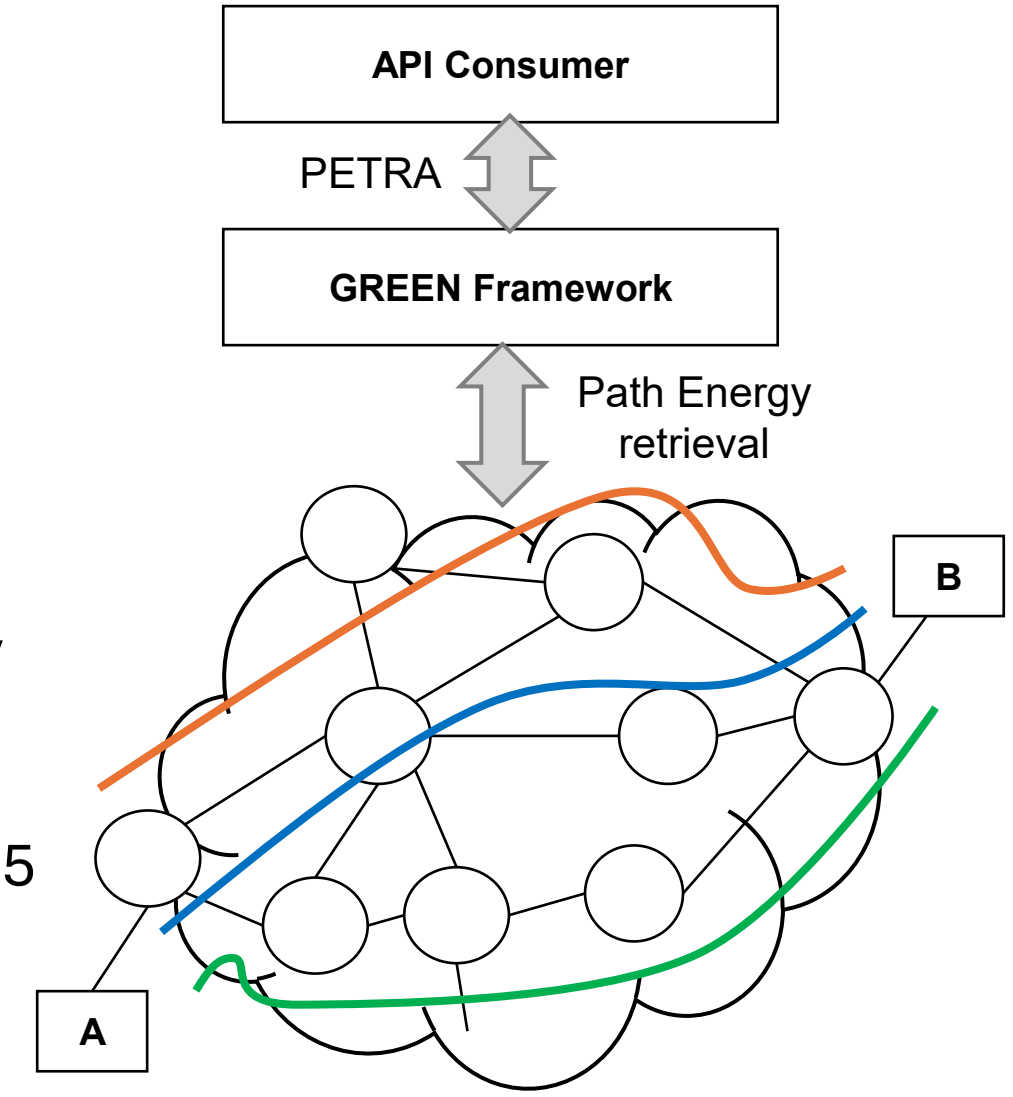
Motivation

- Provide visibility about energy consumption in a path
  - Metrics such as power consumption between source and destination (potentially related with throughput)
- Define an API that can provide such information
  - Using well-known architectures and schemas (e.g. YANG)
- This information can be consumed either externally (e.g., SD-WAN customers) or internally (e.g., for operator optimization purposes)

- Draft presented in IETF 121, 123, 124 and now 125
- Early version presented in PANRG at IETF 120
- Spin-off draft contributed to SUSTAIN RG
  - *[draft-amalj-sustain-shape]*



Changes in -03

- Refinement of the model
  - Throughput defined as *decimal64*
  - *data-source-accuracy* added as part of the model
  - Minor fixes (e.g. contact)

- The model now includes a reference to the GREEN data model *[draft-bcmj-green-power-and-energy-yang]*

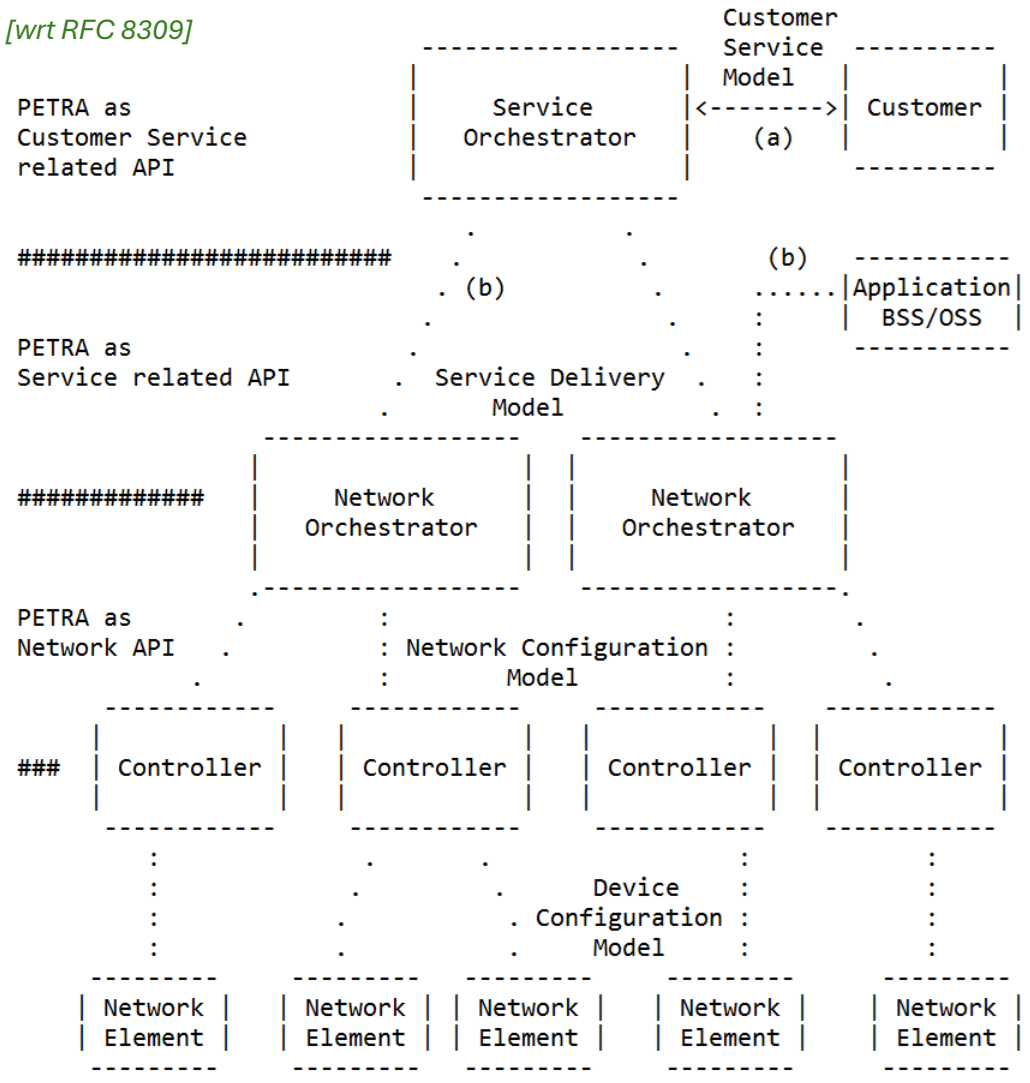
```
leaf throughput {
  type decimal64 {
    fraction-digits 3;
  }
```

```
leaf data-source-accuracy {
  type identityref { base eo:data-source-accuracy; }
  description
    "Accuracy classification of the watts-per-gigabit value,
    using the GREEN data-source-accuracy hierarchy.
    Implementations SHOULD populate this leaf to enable
    consumers to assess reliability. For path-aggregated
    values derived from multiple components, the RECOMMENDED
    value is the LEAST accurate accuracy class among all
    contributing energy objects.";
}
```

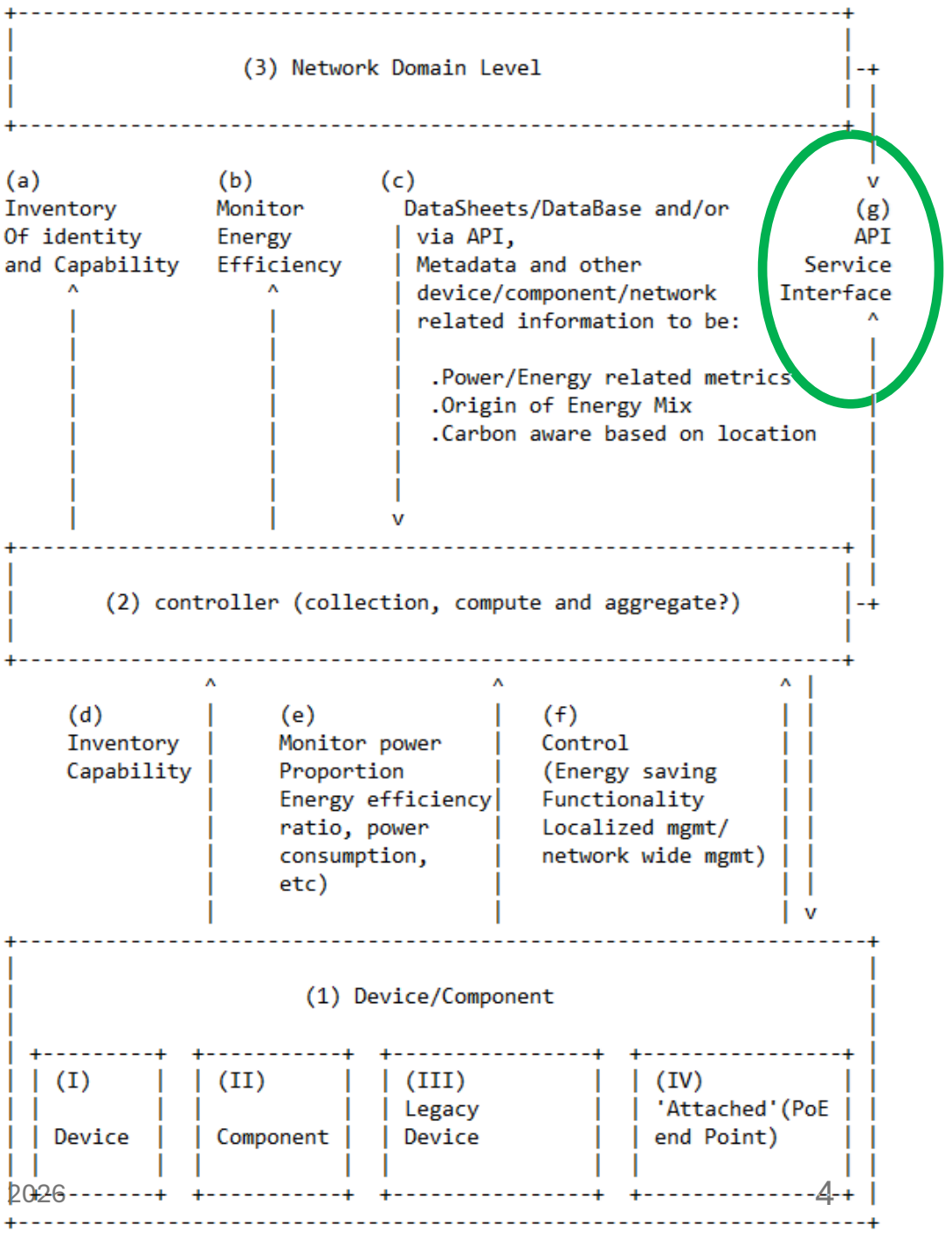
```
import ietf-power-and-energy {
  prefix eo;
  reference "draft-bcmj-green-power-and-energy-yang";
}
```

PETRA positioning

[wrt RFC 8309]



[wrt GREEN framework]



Next steps

- Pending
  - Generalize the model for not being only applicable to IP end-points, but to other kind of end-points
    - Non packet-switched technologies (e.g., optical), multi-layer scenarios (e.g., IP and optical), network slicing, etc
  - Align with GREEN modelling efforts to ensure consistency
  - Explore incentive scenarios (expanding the initial insights on SLAs)

- Request WG adoption as exemplary API for exploiting the information provided by GREEN reference framework