

# Endpoint Properties Extensions

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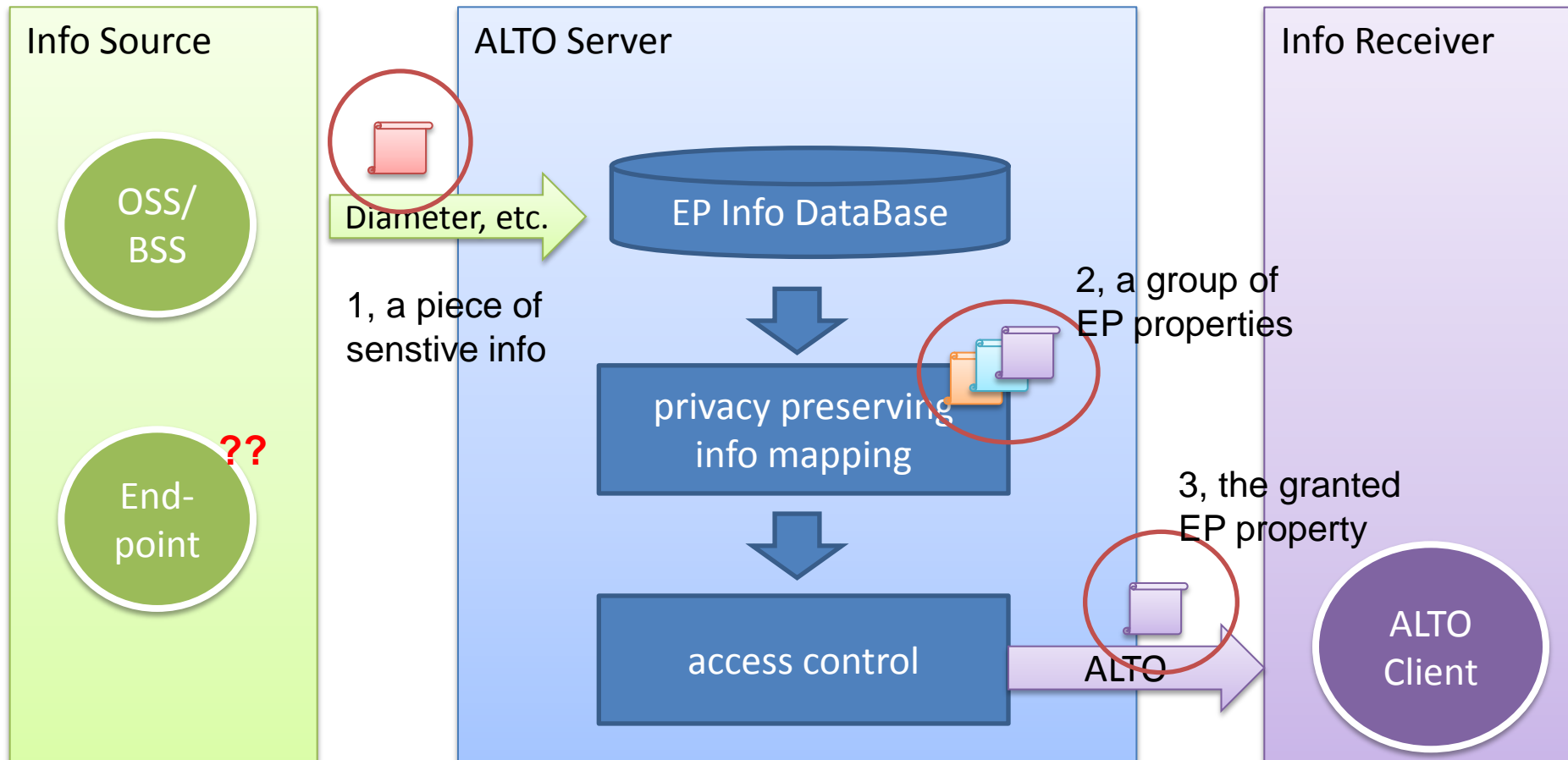
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# Privacy Protection Framework

- Observations from the list discussions
  - General concern for almost all EP properties
  - **(prop, subscriber, app, ISP) => privacy level**



# Data Model

- each property is defined as a JSON object
  - "name"
    - - the string name of the property
  - "precision"
    - - a string from an attribute-dependent set
  - "content"
    - - a string, number, boolean or another object ,  
depending on the value of the "precision" attribute

# Network-related network\_access

- Assumption: an end host's link metrics is dependent to the type of access technology
- Useful when the access bandwidth, stability or other features concerns the application
  - name: network\_access
  - precision: string from network\_precision\_set=["technology", "rank"]

```
"network_access": {  
  "precision": "technology",  
  "content": ["adsl", "ftth", "fttb", "dc", "2G", "3G", "4G"]  
}
```

```
"network_access": {  
  "precision": "ranking",  
  "content": number
```

# Property Categories

- Geolocation properties
  - "geoloaction": Geographic location of the end point
- Node related properties
  - "local\_capacity": Software/hardware configuration
  - "participating\_role": Participating role of the end point (e.g. as a end user, or a CDN server, or a P2P cache, etc.)
- Attached network properties
  - "network\_access": The type and configuration of the access network (e.g. 2G/3G/4G, WLAN, DSL, etc.)
- Subscription related properties
  - "provisioned\_bandwidth": Information about subscription agreement with the ISP

# Next Step

- Open issues
  - do we need "precision" for each property?
- next steps
  - welcome review and input

# Backups

# Geolocation

## Geolocation<Precision>

- Proposed by early discussion and suggested in the new charter
- name: geolocation
- geolocation\_precision\_set = ["countrycode", "boundingbox", "circle"]

```
bounding_box = {  
    "latul" : number;  
    "longul" : number;  
    "latbr" : number;  
    "longbr" : number  
}
```

```
circle_location = {  
    "latc" : number;  
    "longc" : number;  
    "radius" : number;  
}
```



# Node-related participation\_role

- Proposed by early discussion
- Useful when peer selection also impacted by the participating strategy of the end hosts
  - different participating parties (subscriber, ISP, or ICP) within an application's service transaction demonstrate different role/policies
  - name: participating\_role
  - no precision defined
  - content: string from
  - participating\_role\_set=["user", "cache", "super\_node"]

# Node-related battery\_limited

- Assumption:
  - Electric power supplied nodes would stay online longer than those battery supplied nodes.
  - Battery powered devices are usually less willing to act as super peer, relay, etc.
- Useful when a considerable long existence online is essential or preferable in peer selection
  - name: battery\_limited
  - no precision defined
  - content: boolean

# Node-related local\_capacity

- Useful for resource-consuming applications to know the local capacity of an endpoint before it is selected for serving.
  - name: local\_capacity
  - no precision defined
  - content: object

```
"local_capacity": {  
  "precision": "",  
  "content": {  
    "CPU": {  
      "volume": integer,  
      "meter": string  
    },  
    "memory": {  
      "volume": integer,  
      "meter": string  
    },  
    "storage": {  
      "volume": integer,  
      "meter": string  
    }  
  }  
}
```

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"network_access": {  
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  "content": ["adsl", "ftth", "fttb", "dc", "2G", "3G", "4G"]  
}
```

```
"network_access": {  
  "precision": "ranking",  
  "content": number
```

# Network-related Forwarding\_class

- The type of forwarding class the endpoint or network supports
  - network-related property
  - name: Forwarding\_class
  - no precision defined
  - content: string

```
"forwarding_class": {  
  "precision": "",  
  "content": ["expedited", "assured", "network control", "best effort"]  
}
```

# Subscription-related volume\_limited

- Assumption: mobile subscribers with an upper limit to their data plan should be avoided in peer selection for serving other peers
  - Higher charge for excessive data, or
  - Throttled bandwidth
  - name: volume\_limited
  - no precision defined
  - content: boolean

```
"volume_limited": {  
    "precision": "",  
    "content": true/false  
}
```

# Subscription-related

## Provisioned\_bandwidth<precision>

- Suggested by earlier discussion and included in the new charter
- For uploading services, peer's uploading bandwidth is essential for the selection
  - name: Provisioned\_bandwidth
  - precision: string from ["raw", "ranking"]

```
"provisioned_bandwidth": {  
  "precision": "raw",  
  "content": {  
    "value": number,  
    "metric": ["GB", "MB", "KB", "Gb", "Mb", "Kb"]  
  }  
}
```

```
"provisioned_bandwidth": {  
  "precision": "ranking",  
  "content": number,  
}
```