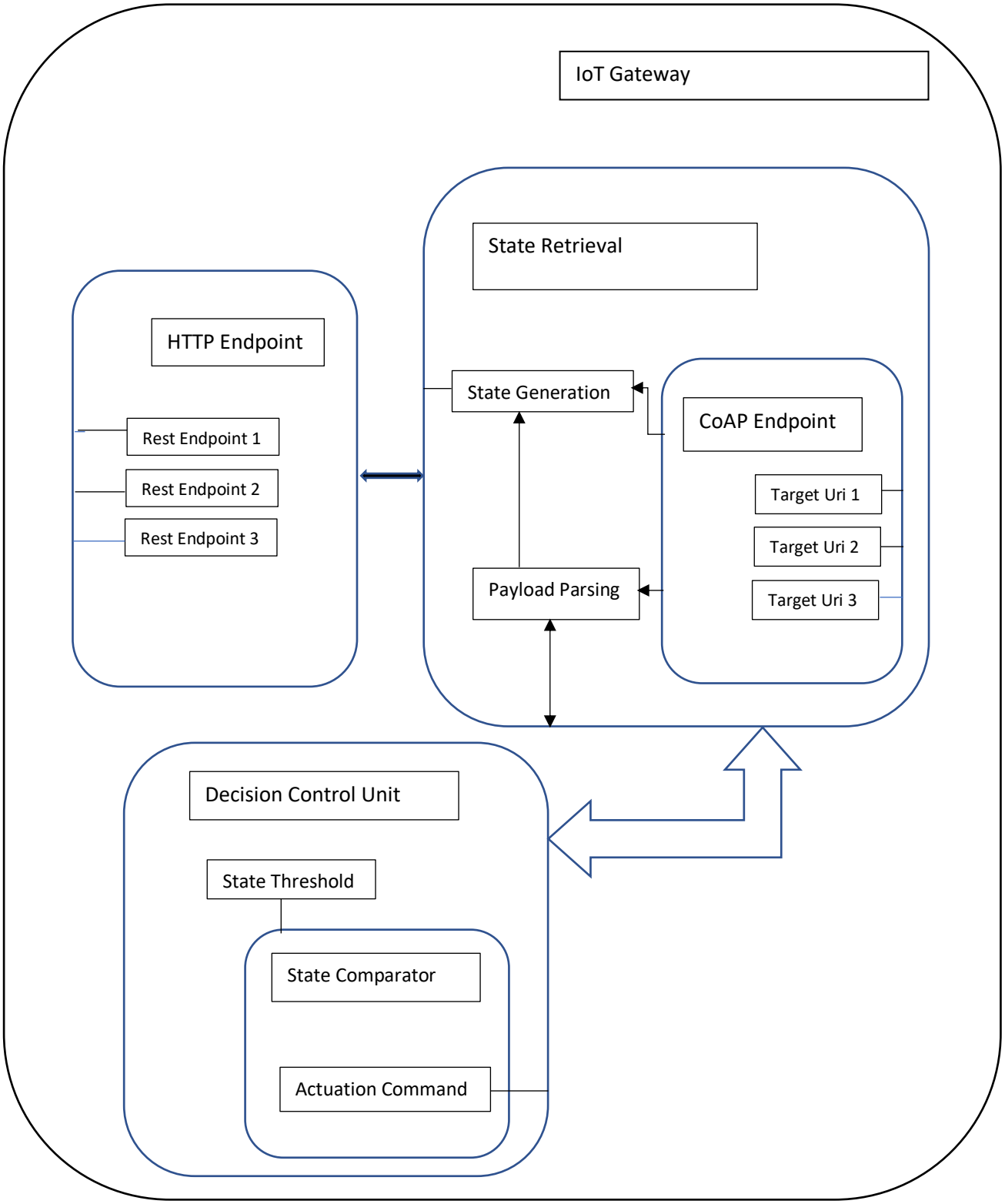
Mobile Computing :

Architecture :

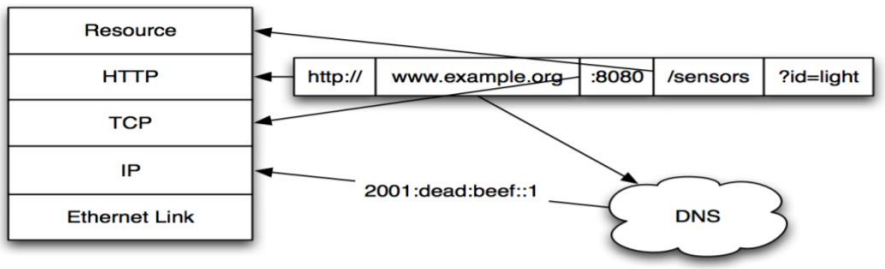


CoAP Semantics and Resource Discovery :

Service Discovery Implemented when the protocol and endpoint URI are both not known.

Example : In HTTP through DNS Query

URL Resolution



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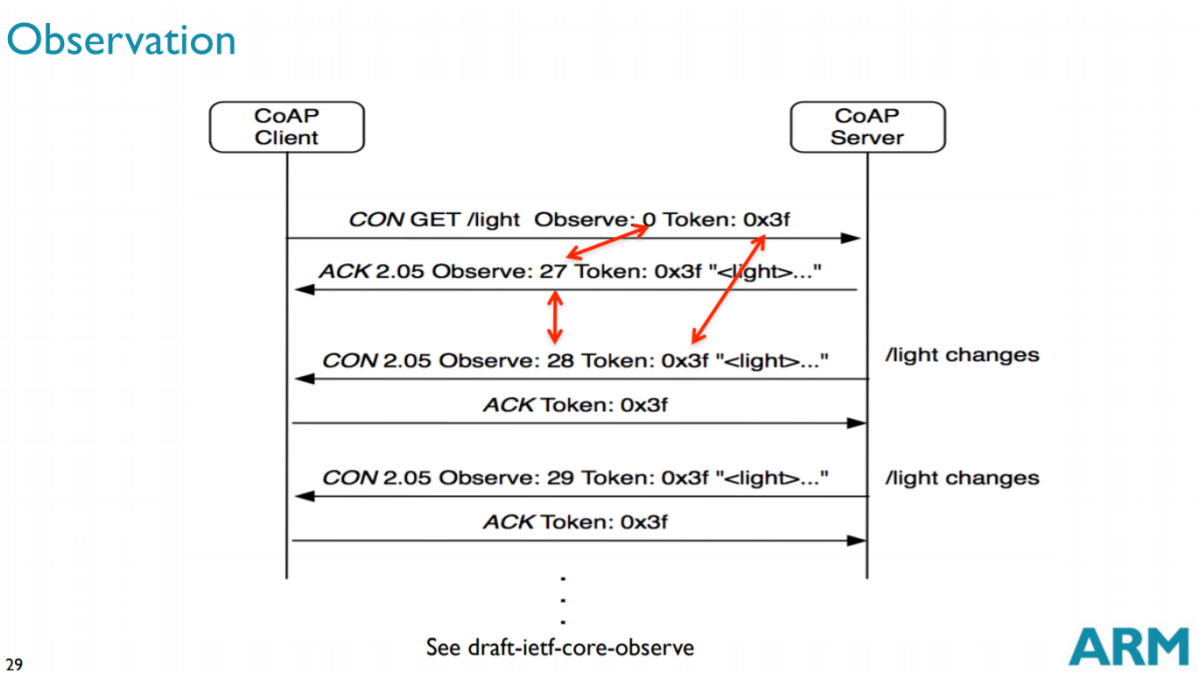
Environment Requirement : Improving Battery Life involves CoAP endpoints not being queried for a measurement at smaller intervals.

2 Methods to improve the fidelity of resources :

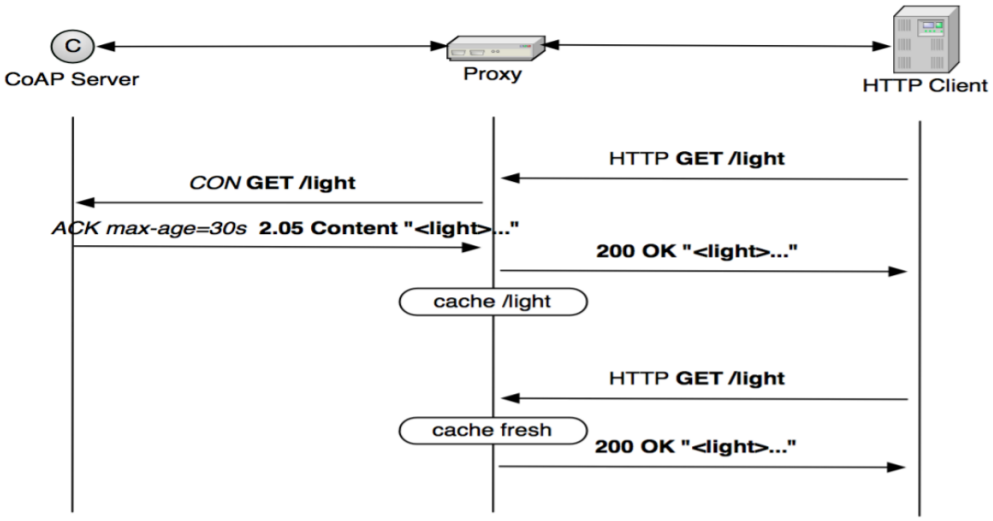
- Caching and Proxying
- Resource Observation

CoAP Resource Observation :



Caching : Storing Resource representation by a CoAP endpoint for the lifetime of the measurement as defined by the sensing endpoint.

Proxying and caching



28

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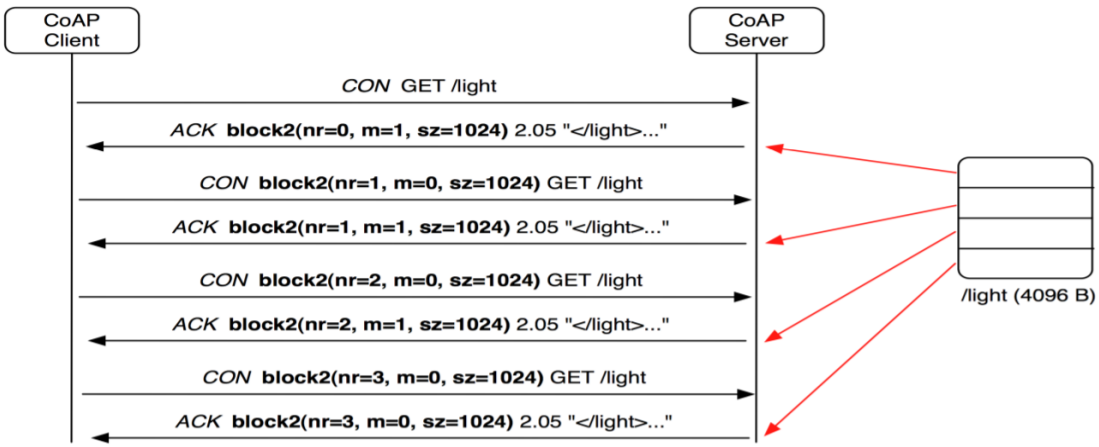
Firmware Updates and Log Transfer:
Typical CoAP payload transfer is of order of 10s of bytes. But for firmware update or periodic log recovery into the database or for centralized analytics , block transfer can be used.

Block transfer



See draft-ietf-core-block

30

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CoRE Resource Discovery :

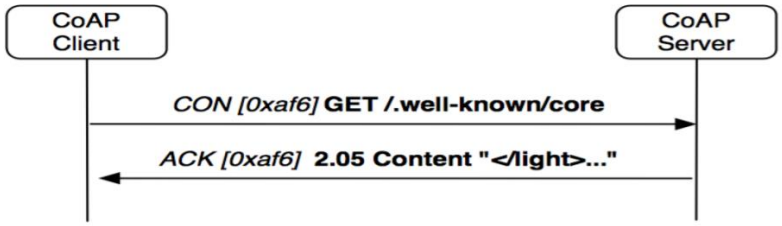
Weblink Format defines resource discovery in Constrained Restful Environments.

RFC 6690 CoRE Link Format

```
REQ: GET /.well-known/core

RES: 2.05 Content
</sensors>;ct=40

REQ: GET /sensors

RES: 2.05 Content
</sensors/temp>;rt="temperature-c";if="sensor",
</sensors/light>;rt="light-lux";if="sensor"
```

Example with IpSO Semantics :

CoRE Resource Discovery




```
</dev/bat>;obs;rt="ipso:dev-bat";ct="0",
</dev/mdl>;rt="ipso:dev-mdl";ct="0",
</dev/mfg>;rt="ipso:dev-mfg";ct="0",
</pwr/0/rel>;obs;rt="ipso:pwr-rel";ct="0",
</pwr/0/w>;obs;rt="ipso:pwr-w";ct="0",
</sen/temp>;obs;rt="ucum:Cel";ct="0"
```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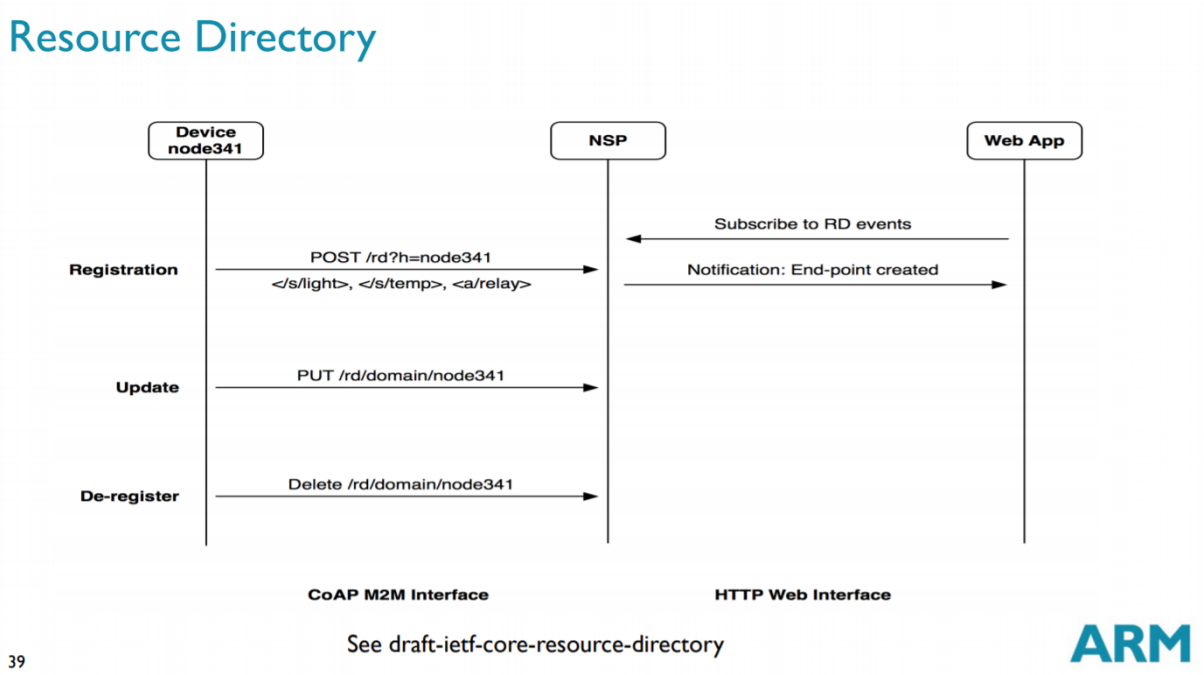
Interface Semantics :

Interface	if=	Methods
Link List	core.ll	GET
Batch	core.b	GET, PUT, POST (where applicable)
Linked Batch	core.lb	GET, PUT, POST, DELETE (where applicable)
Sensor	core.s	GET
Parameter	core.p	GET, PUT
Read-only Parameter	core.rp	GET
Actuator	core.a	GET, PUT, POST
Binding	core.bnd	GET, POST, DELETE

The more general approach will be to have a centralized well known Resource Directory where CoAP endpoints register itself and the CoAP Gateway queries the well-known resource directory.



Architecture :