

W3C Workshop on the Web of Things
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Programming Device Ensembles
in the
Web of Things

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Today's IoT programming model comes from embedded computing

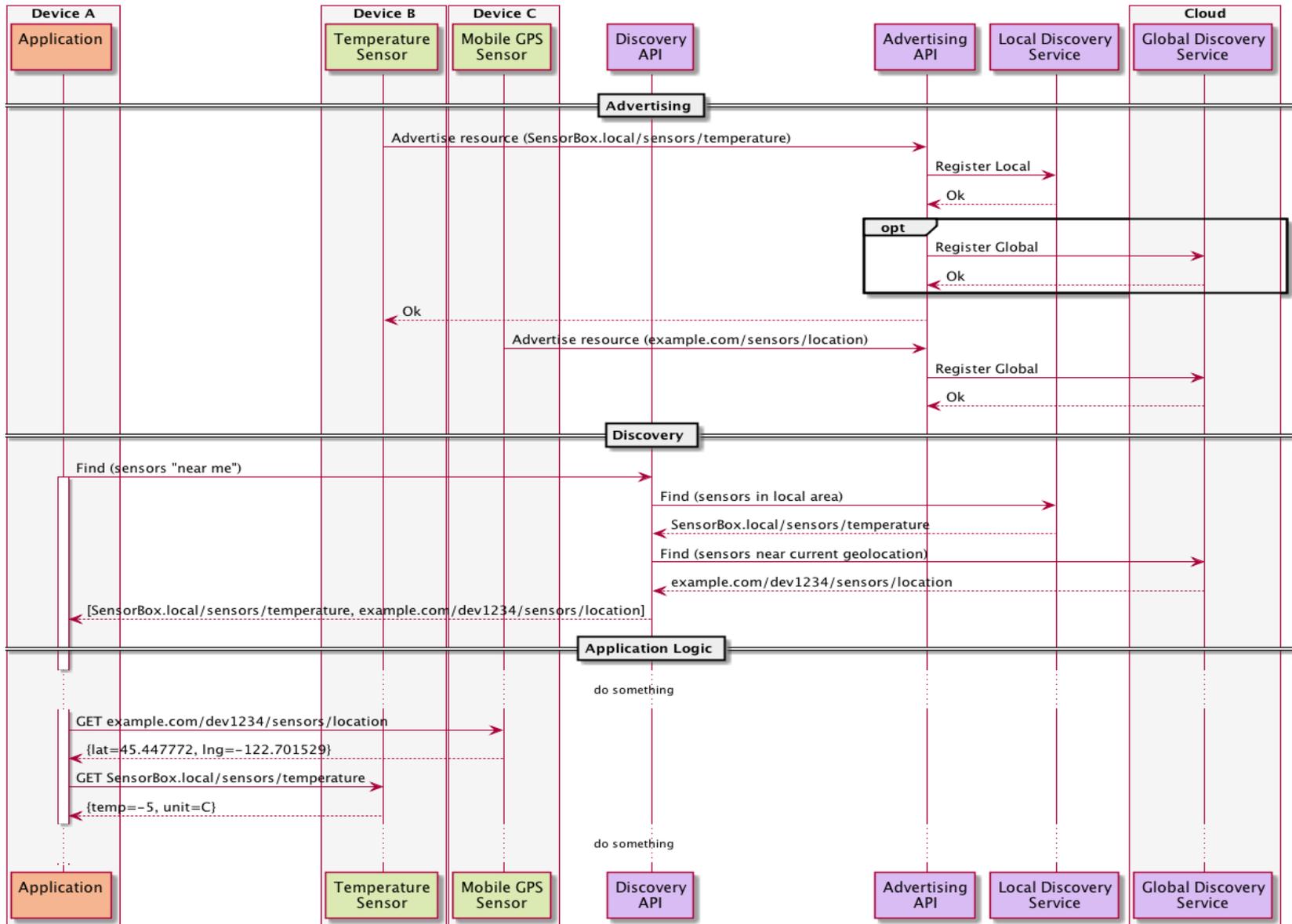
- Device centric
- Statically partitioned
- Constrained by device capabilities
- Single-purpose applications
- Siloed security

Under this model, the WoT would be scale-limited

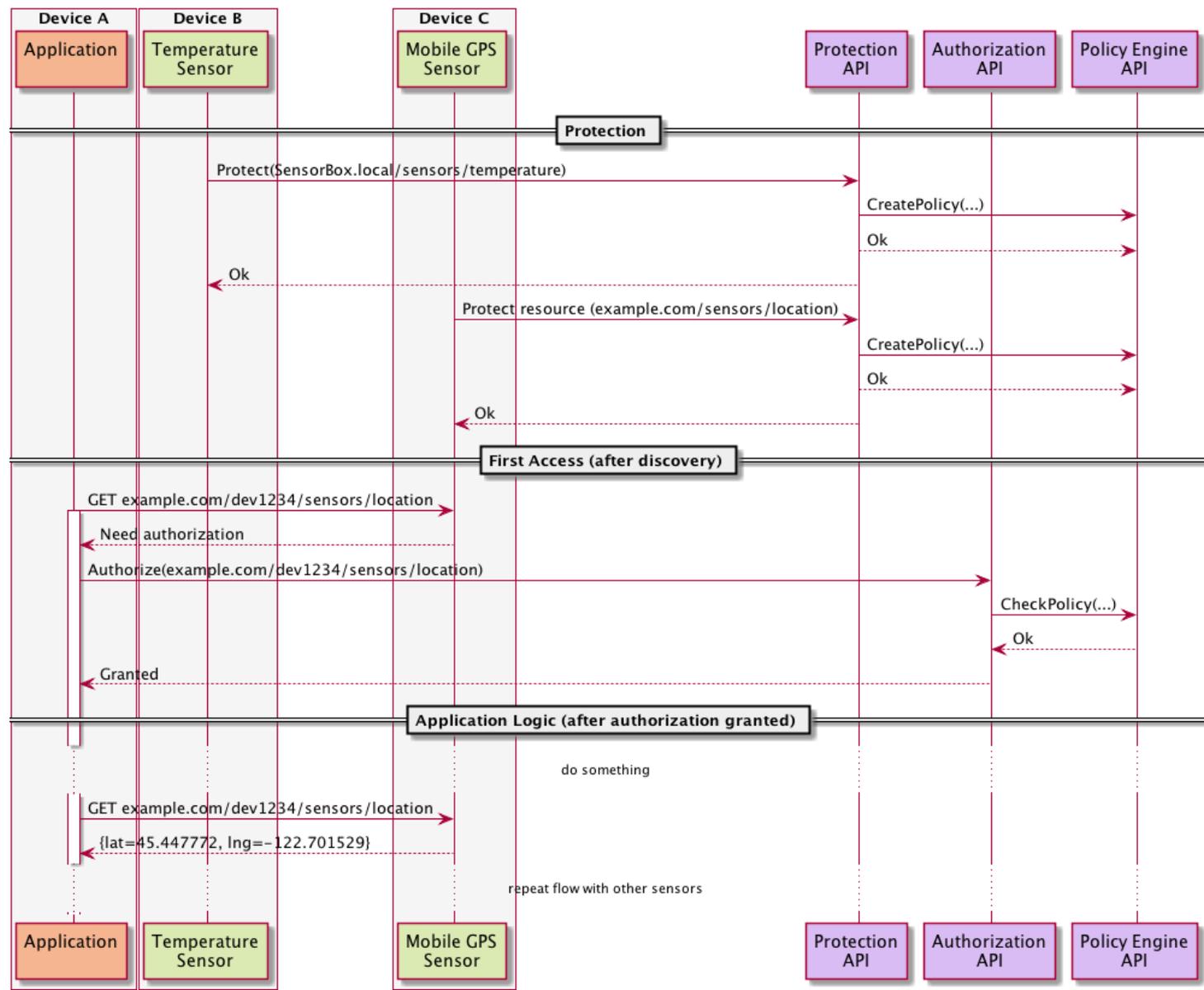
WoT model should evolve towards “ensemble” programming

- Everything is a resource (URL)
 - Sensors & actuators
 - Devices & device capabilities
 - Application runtimes & application services
- Applications dynamically...
 - Establish ensembles via Resource Discovery
 - Obtain access via Multiparty Authorization
 - Off-load computation via Remote Workers

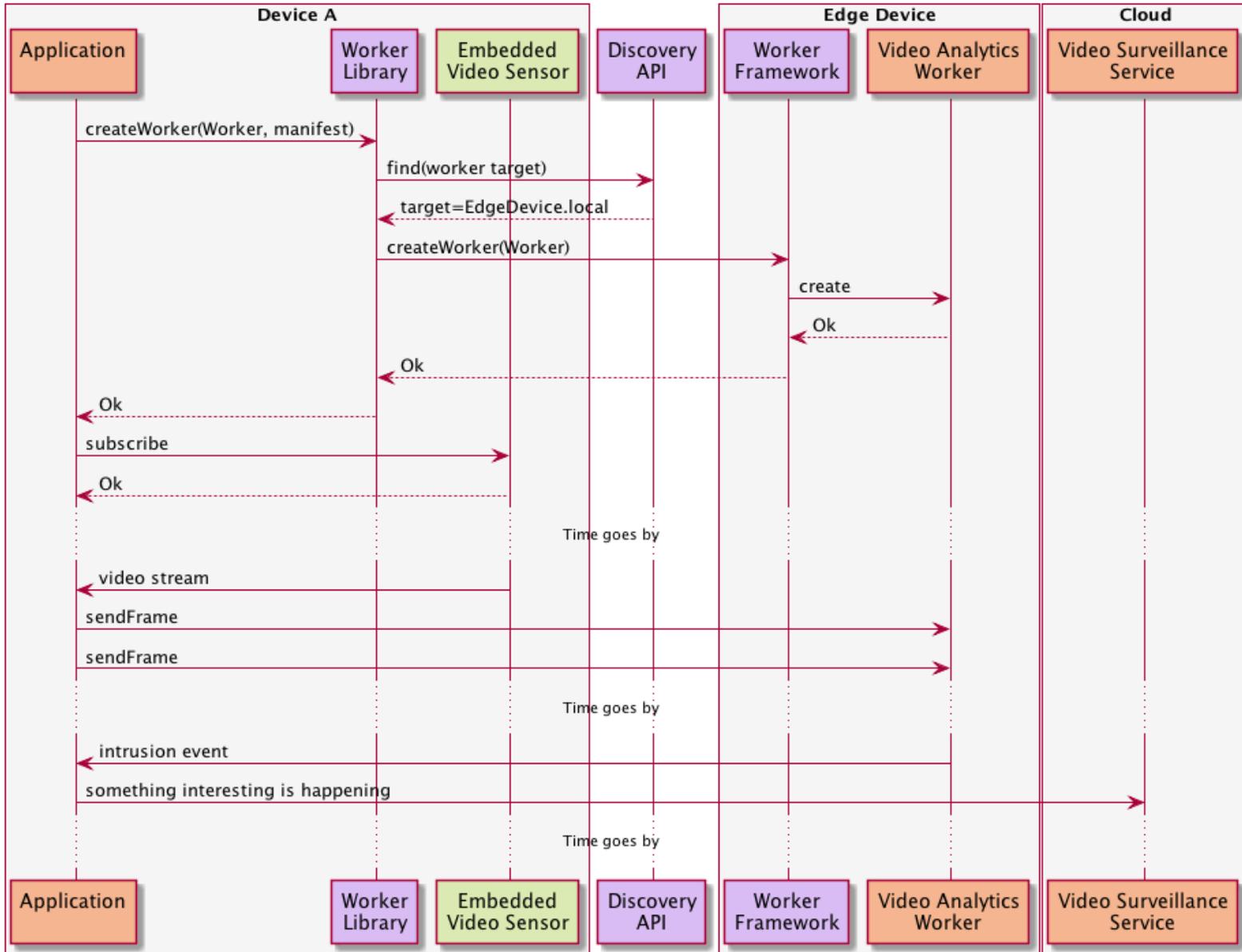
Discover "nearby" sensors



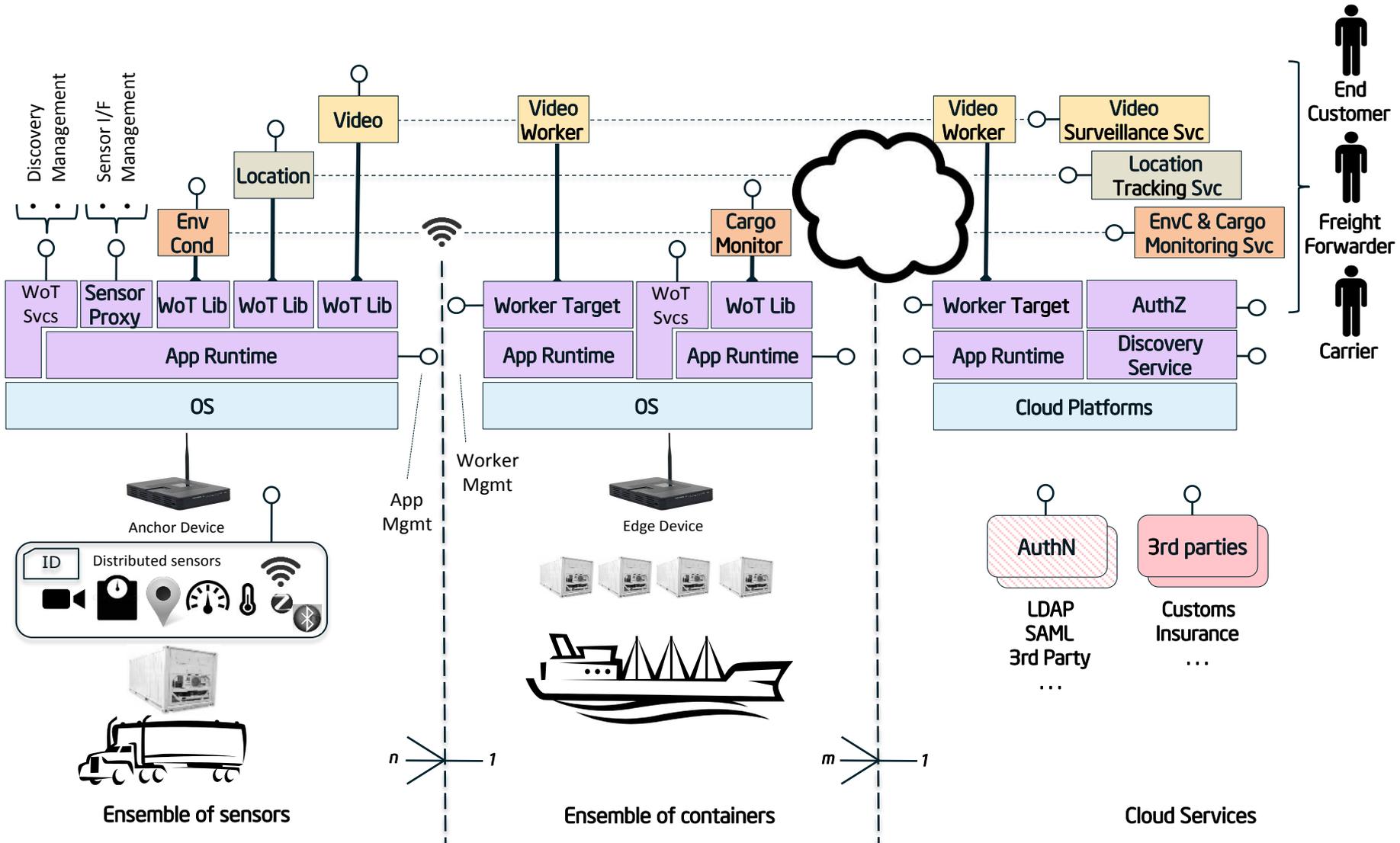
Get permission to access sensor



Off-load intensive computation



Putting it together: Intelligent Container



Our team is ready to participate and contribute in these areas

- Discovery
 - Holistic view that encompasses service & resource, local & global, semantics
 - Leverage: mDNS, NDS, Web Linking, Well-Known URIs, CoAP CORE, RDF
- Authorization
 - Privacy by design, multi-party from the ground-up
 - Leverage OAuth and User Managed Access (UMA)
- Code off-loading
 - Focus on simple programming model
 - Leverage JavaScript, Web Workers and extend to support remote Workers

BACKUP DEMO DIAGRAM

DVR Demo

