

System Management WG Meeting: 8/28/18

Attendees: Jim, Austin (Dell), Paul (unaffiliated), Emad (Intel), Rodney (Beechwoods), Michael (LF), Ed (IoTech), ebrodsky(?), Drasko (Mainflux), Salim(VMWare). Attendees that may have joined after the start of the meeting may not have been captured and listed.

Discussion and action items as a result of meeting in **RED**

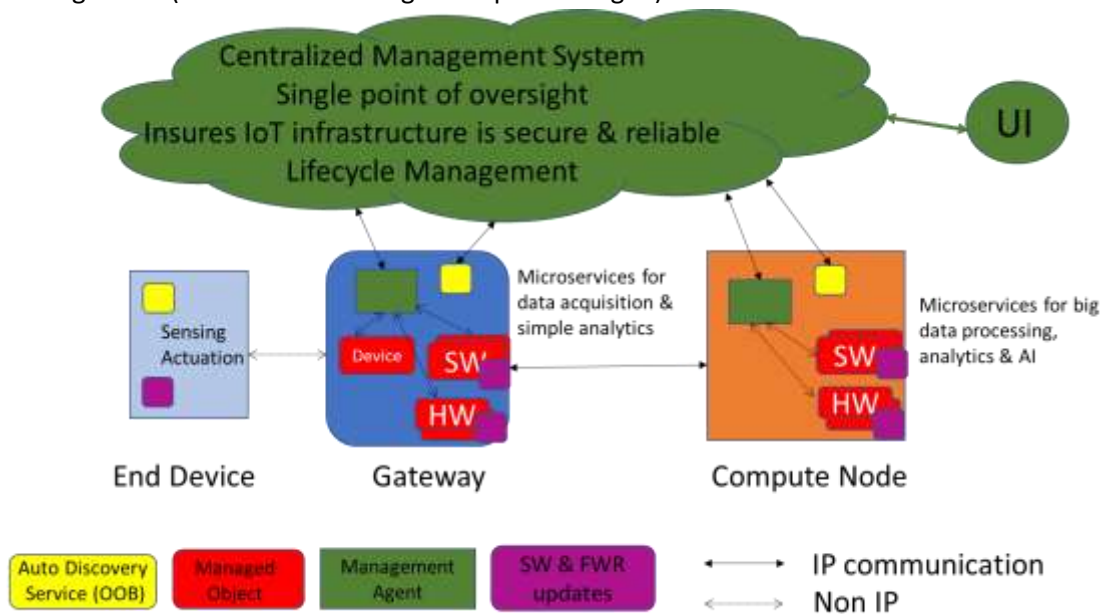
Old Business

- Updates on implementation of SMA and micro service management API (MSM API) from Akram
 - PR submitted and first system management bits now on the master branch of edgex-go
 - SMA starts, functional (not to all requirements yet, but testable)
 - Merging PR into master branch in next day or two
 - API implementation on micro services – starting with get config endpoint (against notifications micro service as test/sample service)
- Edinburgh Release
 - Add metrics (not all of these would be in Edinburgh – TBD)
 - #Objects detected, inferences per second, time per inference (@ analytics level/AI)
 - Some metrics would be service specific (like above) some would be generic (ex: memory, CPU)
 - Need, potentially, to think about resolution of metric data (but don't want to impact service performance itself)
 - Data flow metrics: events per second, readings per second ideas
 - **Other metrics: I/O per second (probably using other tool)**
 - **We may need to split metrics by those collected by the micro service and those collected external to the micro service**
 - SMA Translation layer (to talk LWM2M, OMADM, Redfish, etc.)
 - How to push data/metrics to other systems (REST v message)
 - How to allow for pull of data/metrics
 - Move these up from Fuji
 - **Storing metrics collected locally?**
 - How to push data/metrics to other systems (REST v message)
 - How to allow for pull of data/metrics
 - Concern with too many database; or should it be a shared database in EdgeX
 - Could be supported of in-memory database vs disk? Allow downstream to store to disk as needed. (Use Redis for this for example).
 - **Get metrics into time series database (like InfluxDB)**
 - **Intel Use case: would be needed for local AI inference work**
 - **Want to monetize algorithm – need to meter algorithm and requires metrics to do that**
 - **Would potentially need to be exported or used locally**
- Fuji Release (Oct 2019)

- Setting config (what is read only vs. writable property)
- Callback (alerts on changes config/metrics)
- Add actuation based on metric change (control plane level rules engine/analytics)
 - Ex: Stop or restart a service if we see CPU rise to a certain level
 - Anomaly detection at system level
- Ability to deploy the containers – an installation process/orchestration tool
 - What is optimal deployment/orchestration tool of choice?
 - Perhaps sys management agent would be independent of other containers and pull down EdgeX to box
- Wish list beyond two releases
 - Software update of micro services
 - Vs hardware/BIOS/etc.
 - How to do with various containers (Docker, Snap, Kubernetes, etc.)
 - Talk about broader “standard” for system management & system management APIs
 - Prescriptive guidance
 - Using EdgeX sys management as example implementation of
 - Test bed potential with consortia/standard groups

New Business

- Pre-cursor to Edinburgh meeting – what is EdgeX management versus broader gateway management (what in Salim’s diagram is part of EdgeX)



- **Device level**
 - OOB comms
 - OS updates
 - Firmware updates
- **“Gateway” or Edge level**

- OOB comms
 - OS updates
 - Firmware updates
 - Application set orchestration/updates(EdgeX) – potentially using containers
- IoT Compute Node level
 - OOB comms
 - OS updates
 - Firmware updates
 - Application set orchestration/updates – potentially using containers
- Generically
 - Configuration of each compute platform
 - Networking setup/configuration
 - Store of secrets (certificates, keys, etc.)
 - Configuration of certificates for use externally (like with connectivity with AWS)
- Distribution of containers on a node
- Onboarding of gateway or other compute nodes (securely)
- Onboarding of sensors/devices (securely)

- Description language – needs inside of system management (do we need thoughts about such for management concerns?)
 - How to have self-describing management objects