Monthly Architect's Meeting, March 15, 2021, 10am PST

Attendance:

Some attendees may have joined after the call started when this record was captured.

In Working Group Review Right Now

- Core/High - Ensure that service location data is pulled from trusted source (i.e. not Consul) (Tony's ADR)
    - Covered in Security WG
- High - V2 API - should we add security foundation added to that (per some of earlier V2 API designs via Dell and Bryon N)?
    - Adding token to authenticate a micro service call (is this in scope for Ireland)
    - May not be needed unless all services are distributed
    - We need to explore alternatives to provide secure / locked out service to service communications
    - Everyone felt that we should at least continue the exploration.
    - ADR will be developed/reviewed by Bryon through the security work group
    - There are a number of questions that remain and need to be addressed in the ADR.
    - The scope of work would reach past Ireland and be non-backward compatible, so we will need to have a "feature-flag" implementation to opt in to use this capability.

High Priority

No High Priority items remain on the list

Questions posed to Adopters and to PRC EdgeX users

Q1. How are organizations using Consul with EdgeX? Do users in PRC make changes to configuration using Consul UI? Are changes made during runtime?

> A1.1 Consul is used as service registration and configuration management center, for micro service architecture, this is a necessary component. We use Consul at runtime to modify configuration of other micro services, for instance metadata db address, which is very useful in use case of not shutting services.
>
> A1.2 yes, it's better to support online modification, because industry control demands business continuity.
>
> A1.3 yes, as configuration and registration center and will be used for load balance in the future.
>
> A1.others mostly yes.
>
> Follow up: clarity on #1 answer (not possible without a restart) and also find out if they are changing configuration.toml simultaneously or not

From building automation adopter of EdgeX: do need to make configuration changes from time to time, mostly when adding the BBMD_ADDRESS and BBMD_PORT to the bacnet service. I use consul for this, but the default config of every other service has been fine.

> Are these parameters on a particular device or service?

Q2. Would users in PRC like to make changes to device profiles at runtime? Today profiles are static and can't change. Are there use cases for making changes?

> A2.1 yes, we'd like to modify device profile at runtime, for instance to modify dynamically decimal, max, min of a return value, or add other unused resource parameters to a device. Although we could remove device, device profile and add again now, it's a little inconvenient. We have to record earlier name, description of devices, so in this circumstance, it's better for developer experience to allow modification at runtime.
>
> A2.2 yes, for example in large system integration, the metrics under monitoring may change quite often at the early stage.
>
> A2.3 yes, it's usual for device profile with same datas sources. otherwise it's seldom unless human error. for example, certain device includes multiple resources. At the beginning we only configure part of data sources. Later on we find more sources or their composition are used.
>
> A2.others mostly yes.
>
> From building automation adopter: I do believe it would be helpful to modify a device's profile during runtime. It would allow for a "base" device profile to be incorporated and added onto as needed. For instance, if we are using a BACnet Air Handler controller, it may or may not have economizer, co2 control, preheat control, etc… So it would definitely be helpful to be able to add that dynamically without modifying the existing device profile or having to have two different profiles for essentially the same piece of a equipment, just that one has a bit more features. That being said, I see why having the two separate device profiles may be preferred as

they can be checked into version control and reused, but I think the option would definitely help in some occasions.

Q3. What types of protocols (sensors and devices) are you connecting most to EdgeX in production in PRC?

A3.all modbus (modbus-tcp), zigbee, bluetooth, matt, plc, power grid protocols, opc-ua, onvif, rest.

Medium Priority

- Event and Readings have many redundant properties. (added per Core WG 2/18/21)
  - Are there places to remove redundancy in Event/Reading? Could we remove device profile and device name fields in reading (and just use those in Event)?
  - Would anyone need to query Readings and need the profile or device name when they just pulled Readings independently?
  - Are there other places where Readings become divorced from Events and we need to consider the consequences of duplicating fields in each? If so, would it be better just to have Readings have a reference to its "owning" Event?
  - **Decision**: drop created on both Event/Reading – timestamps of origin are already UTC to address services in different locations. If we need to, we'll add back
- Keep commit history from beginning to end (don't squash them until PR approved)
  - Easier to make comments and don't squash during review
  - Most useful on ADRs.
  - Github – Merge button has squash and merge option (which should be used by mergers)
  - **Decision**: In general – don't squash until PR is approved; don't force push updates based on review feedback. Instead make comment. Always do a force push on the last push in order to rebase.
    - **Commit: git commit -s -m "your new comment"**
    - **Don't: git push -f origin branch**
    - **Instead: git push origin branch**
    - **At the end, use merge button options to squash**
  - **Jim to update Wiki**

- Standardizing units of measure
  - [Unified Code for Units of Measure](#)
  - [International Systems of Units](#)
  - [ANSI X-12 allowable units of measure and codes](#)
  - What are we looking for: Device type – adopted golang types
    - Common type systems for IoT
    - LWM2M
    - Kura
    - IOTivity
    - Is there any movement to a common standard?
    - IETF
    - RFCs on Type
  - How do you code it from one machine so that it is understood by a second
  - Explored the 3 standards (at links above). ANSI is more of what we are looking for.
  - Jim to see if there are other related standards (like the ANSI standard) and see what other IoT/Edge projects are doing. He'll provide more info at the next monthly architect's meeting.

Items below this did not get covered in the meeting and will be picked up in the next meeting.

- Declarative Kong applicability
  - Allowing us to drop Progress DB
  - But can you configure groups/users ACL
  - Only supports JWT users

Low Priority
- Is the Wiki the best place to document project decisions (those outside of or smaller than ADRs). This was our initial take. Should we revisit?
- Revisit combine core services at least at all executables in one image
  - Release would be easier but image would be bigger with more complex compose files
- Digital twin (and LWM2M) applicability
  - Being worked via liaison with DTC
- Time series database support and applicability
  - Ian Johnson has an example of app service to InfuxDB export (snap in the store)
- Low - where should tool/script for creating new device and application services be placed?
  - After the templates are in place with the SDKs, there is a decision to be made about where automation can be placed to use the templates to create new services (versus a manual copy). In the CLI, in a new tool, in a set of simple scripts?