# System Management

Edinburgh Release Update

# Edinburgh Release Task list

Current effort

- Refactor and improve the start/stop/restart capability of the SMA
  - Refactor to allow for more/better abstraction
  - Allow SMA to be Dockerized
- Add CPU usage metrics (in addition to memory usage metrics)
  - Additional API (and pass through to the services) to be added to the SMA
  - Look at abstraction around metric APIs to allow for other implementations going forward
    - Example: allow memory and CPU metrics to be provided by external executable
- Add health/status check of the services to the SMA
  - This will be a call through to the configuration/registry service (Consul)
  - Allows a single point of entry for all EdgeX control plane needs
- Stretch goal – provide a translation layer (with abstraction) to offer SMA API via other protocol (like LWM2M, SNMP, etc.)

# Refactored start/stop/restart operations

- Requirements of system management start/stop functionality gathered @ last meeting
  - Given all the possible ways that a service like the SMA could start or start another service, we settled on support of the following:
    1. SMA would call Docker Compose to start and stop services
       - We choose not to support Docker calls directly because there are so many parameters that would have to be provided
       - Need proper abstraction to allow for other options going forward
    2. SMA would call an executable (a binary) with a list of services it wants to start or stop.
       - Shell scripts could be handled by the author creating an executable that calls the appropriate script
       - No other parameters need to be provided as the executable will have its own config
       - Need proper abstraction to allow for other options going forward
  - Determining success of the operation (start/stop) will be future feature
    - Desirable to have some sort of callback in future (stretch goal at best for Edinburgh)
    - Should at least provide log entry of operations for manual audit of what happened

# Start/Stop operation considerations

SMA **in** Docker container trying to start (or stop) EdgeX service **also in** a Docker container

Harder to do – but think docker-in-docker approach will work.

~~SMA **in** Docker container trying to start (or stop) EdgeX service that is **not in** a container~~

Doesn't seem to make sense. Any use cases?

~~SMA **not in** a Docker container trying to start (or stop) EdgeX service that is **in** a container~~

Doesn't seem to make sense. Any use cases?

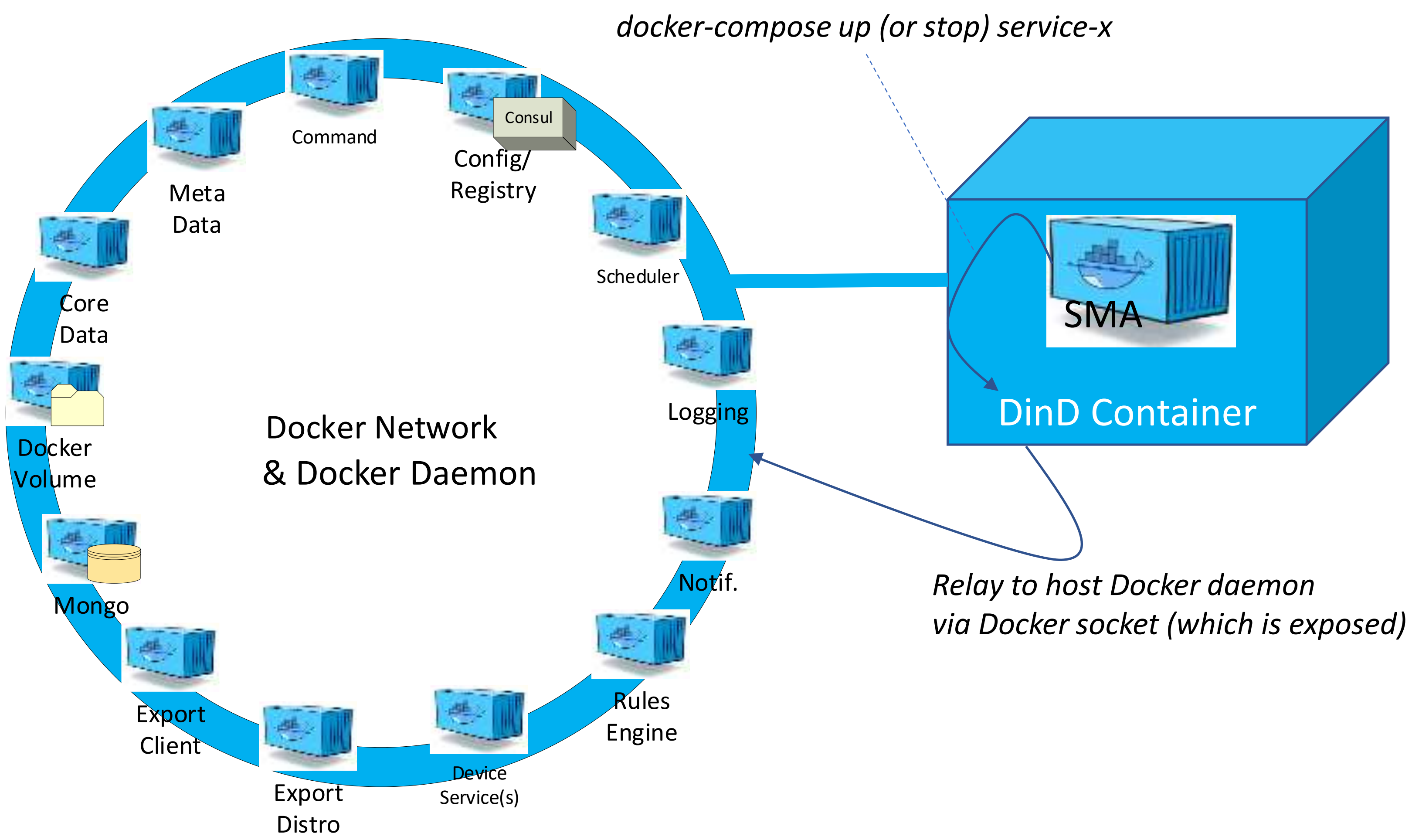
SMA **not in** a Docker container trying to start (or stop) EdgeX service that is **not in** a container

Easy – SMA already does but we need to make sure interfaces are in place

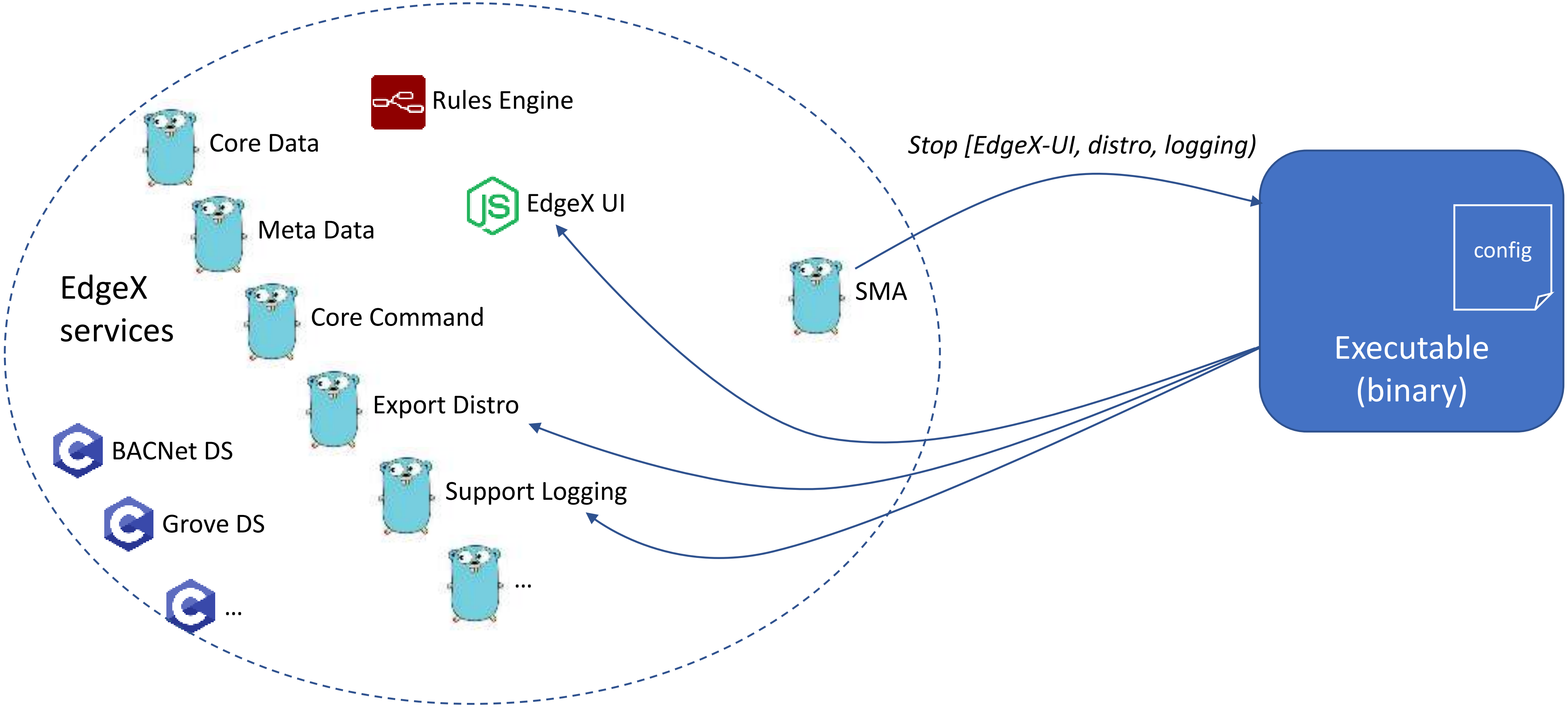
# Start/Stop operation POCs

- POC A
  - Test that docker-in-docker concept will allow docker-compose command from inside an image, will defer execution of docker-compose to outside the image (to the native OS)
  - ✓ Completed
- POC B
  - Create docker-in-docker image that contains Docker, Docker Compose and EdgeX docker-compose file
  - Based on smallest image available (possibly dind to help provide Docker in Docker base)
  - Create Dockerfile for this image as our starting point
  - Be able to launch EdgeX with exec in and call to docker-compose up –f from inside this image
- POC C
  - Add SMA to image above
  - Be able to execute SMA REST call that triggers docker-compose call through docker-in-docker image to native OS to start/stop EdgeX
- Step D - redesign the APIs, interfaces and get community input on
  - How SMA calls executable binary (and how it could support other options in the future)
  - How SMA calls docker-compose to start/stop services (and how this could be used to support similar options in the future)

# System Management – Dockerized SMA



# System Management – Non-Dockerized SMA


Rules Engine
Core Data
Meta Data
EdgeX UI
EdgeX services
Core Command
SMA
Export Distro
BACNet DS
Support Logging
Grove DS
…
…
Stop [EdgeX-UI, distro, logging)
config
Executable (binary)