



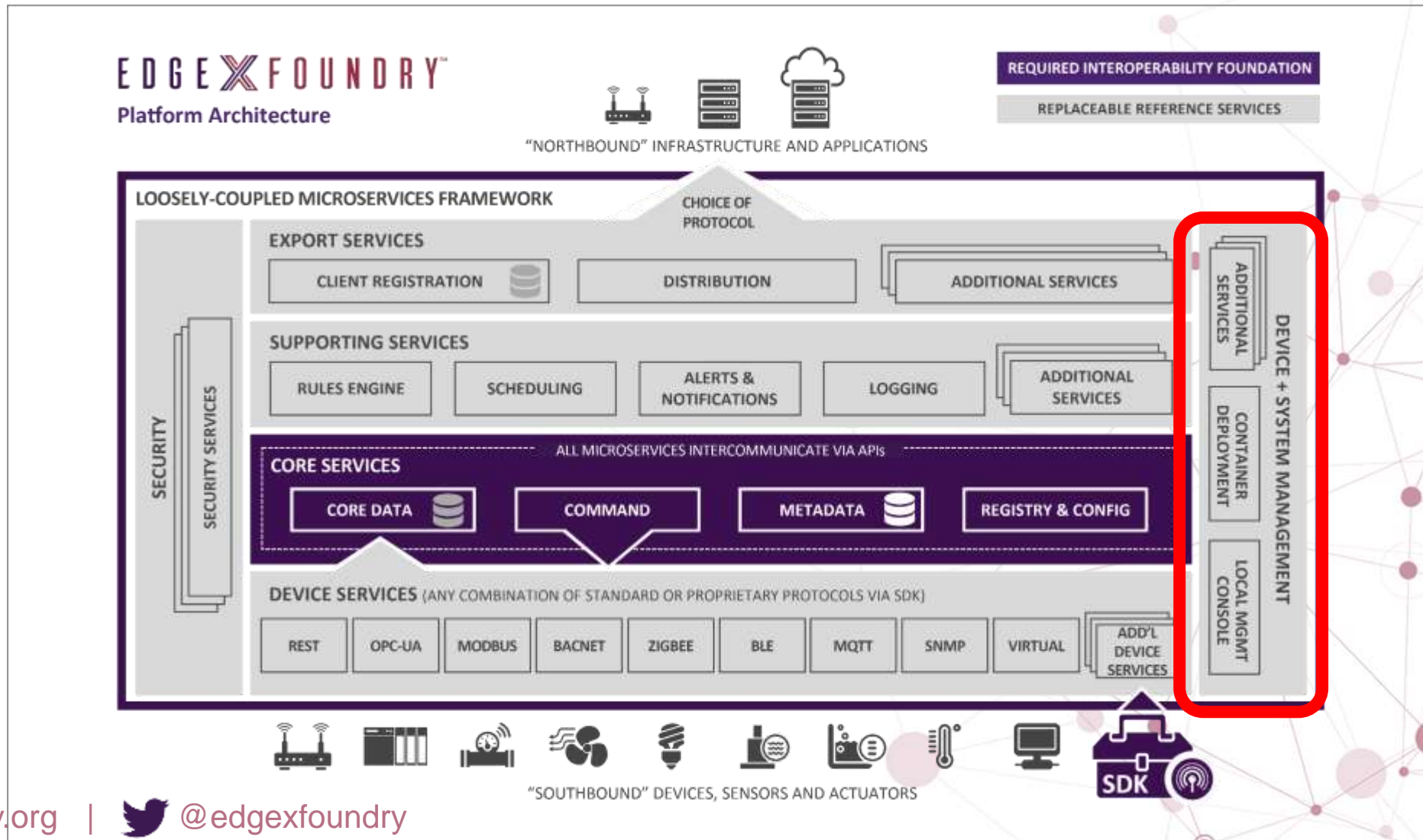
EDGE X FOUNDRY™

EdgeX System Management

2018-19 Roadmap

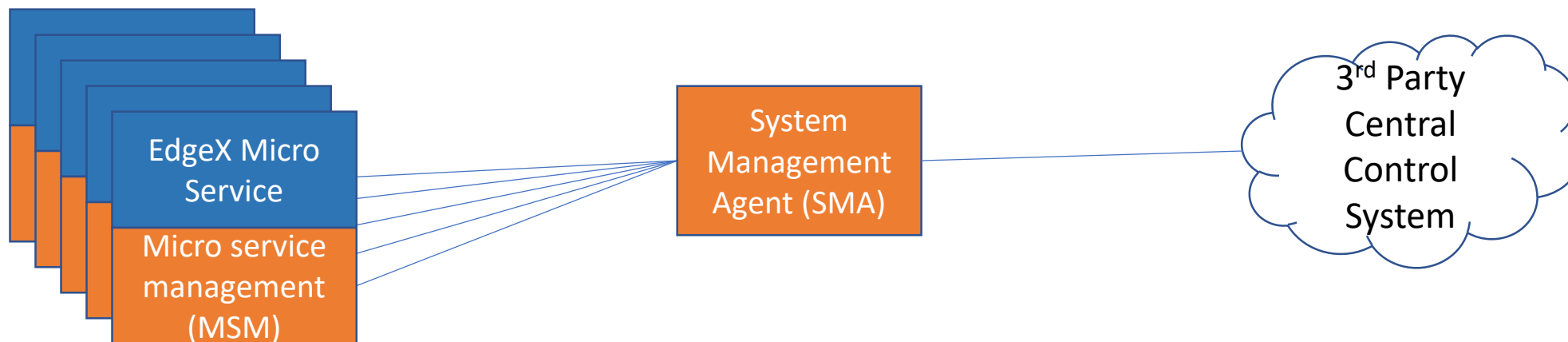
Jim White

EdgeX System Management – the last frontier



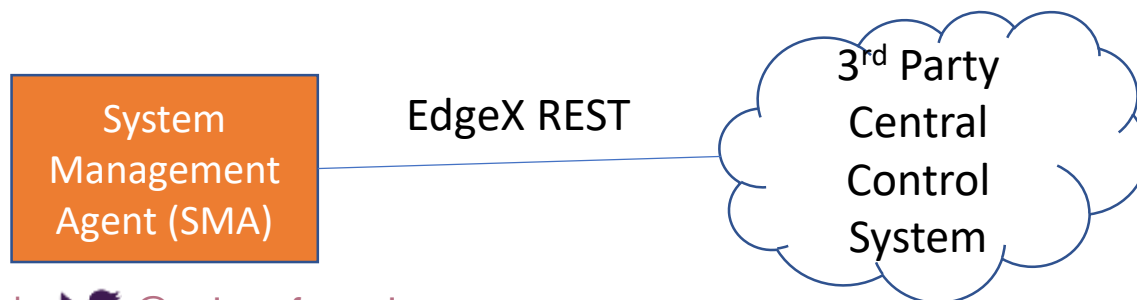
EdgeX System Management - Delhi

- System Management Agent – new micro service to centralize EdgeX control plane data and actuation
- System Management API (micro service management – MSM) – functionality built into each service that communicates with SMA
 - Could also be used by other 3rd party management systems



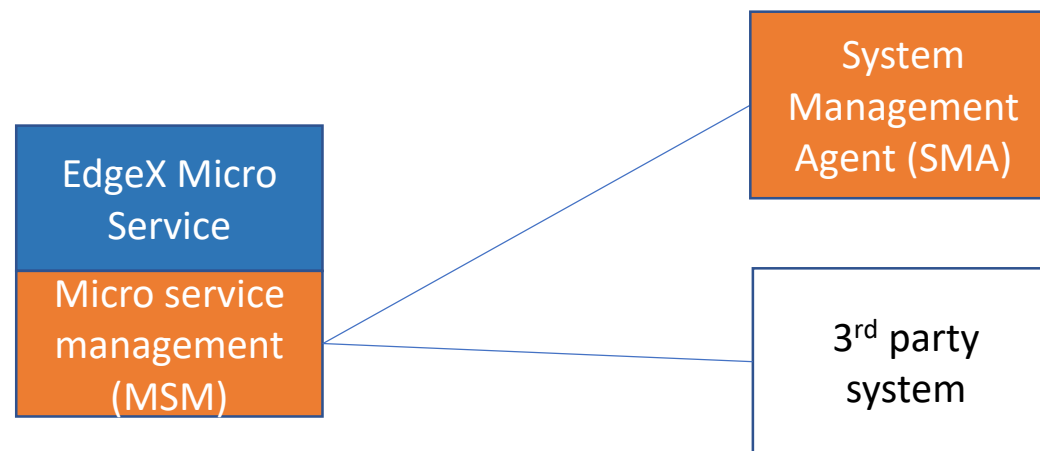
System Management Agent (Delhi)

- Start, stop, restart all EdgeX micro services
- Get the configuration settings (aka properties) for an EdgeX micro service
- Get the memory usage for EdgeX micro services
- Provide a public REST API for 3rd parties to use to manage EdgeX
 - For this release, the API and data provided by this API is dictated by EdgeX



Micro Service Management API (Delhi)

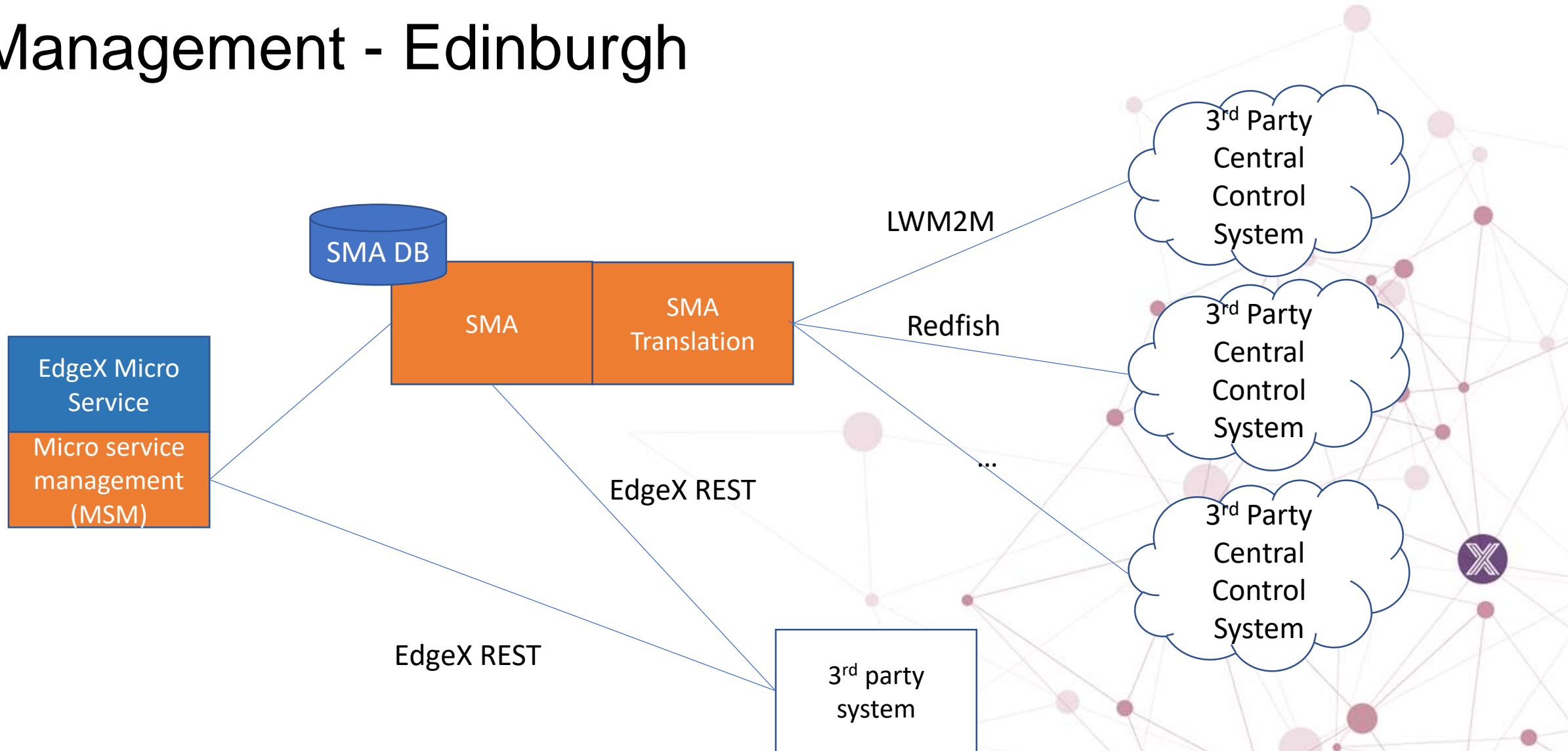
- Stop the EdgeX micro service
- Provide the configuration settings (aka properties) for the service
- Provide the memory usage for the service
- REST API for each service will be consistent across all services
- The API of each service could be exposed to the world, but its real use is to be utilized by the SMA



System Management - Edinburgh

- April 2019
- 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)
 - Tracing
 - We may need to split metrics by those collected by the micro service and those collected external to the micro service
- Storing metrics collected locally
 - Push / pull historical data/metrics to other systems
- SMA Translation layer (to talk LWM2M, OMADM, Redfish, etc.)
 - Protocols to support and which reference implementations are offered to be determined

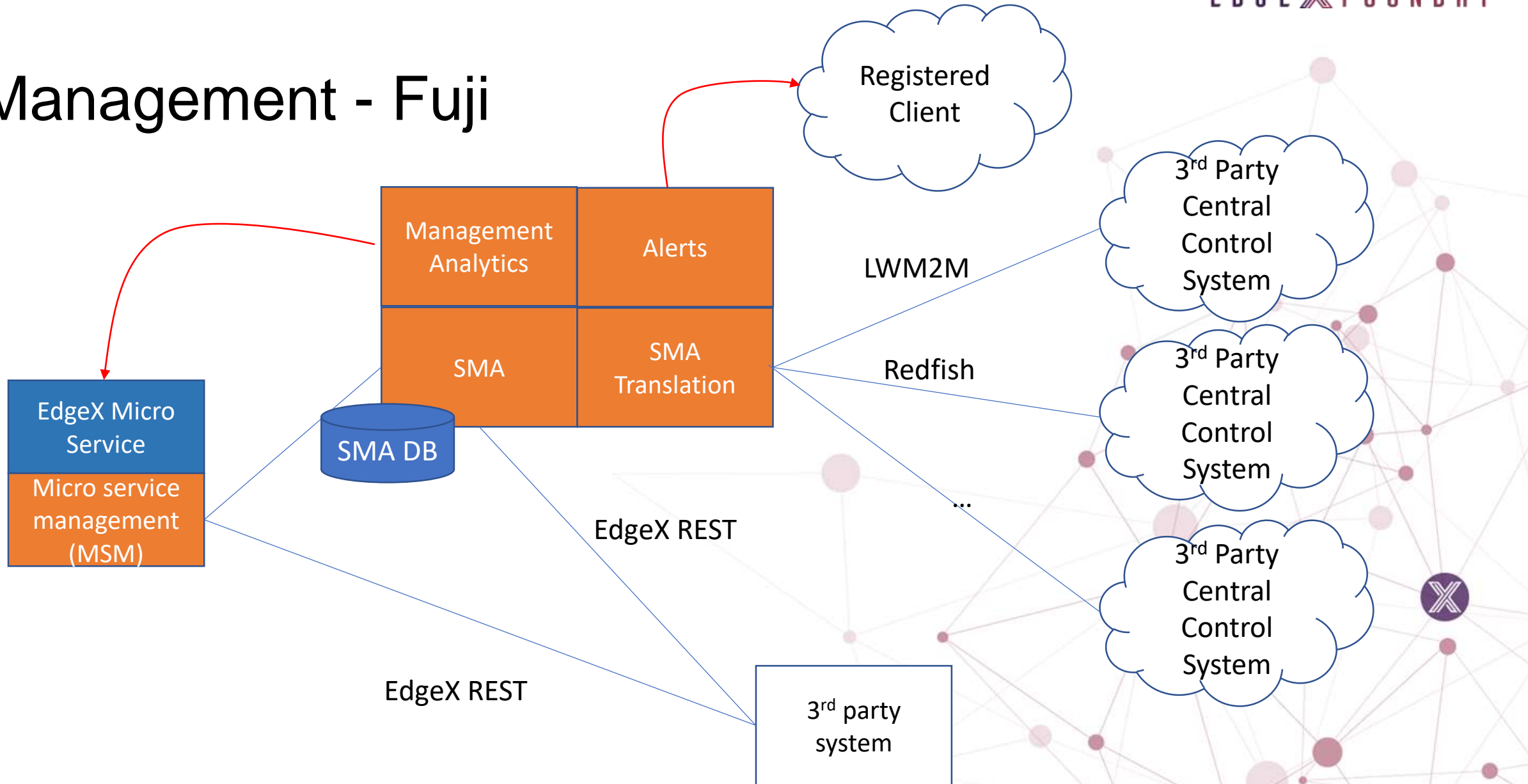
Management - Edinburgh



System Management - Fuji

- Oct 2019
- Setting configuration
 - Today, configuration is read only
 - In conjunction – EdgeX config work to define read only vs. writable property
- Callback (alerts on changes config/metrics)
 - Allow clients to register for change in EdgeX
- 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

Management - Fuji



EdgeX vs. Platform/Gateway Management

- Ongoing discussion to identify what ultimately goes into EdgeX
 - What management is needed from the platform
 - What provides the functionality and gap analysis
- Work with consortia/standards bodies to come up with interoperable solutions/standards
- Ability to deploy the containers – an installation process/orchestration tool
 - Perhaps sys management agent would be independent of other containers and pull down EdgeX to box
- Gateway or platform management
 - Networking setup/configuration (ex: setup Wi-Fi, ports, etc.)
 - Store of secrets (certificates, keys, etc.)
 - Configuration of certificates for use externally (like with connectivity with AWS)
 - Software deployments and updates
 - BIOS/firmware updates
 - Onboarding of gateway or other compute nodes (securely)
 - Onboarding of sensors/devices (securely)
 - A common schema (choice or creation) for communications??

Edge Management

