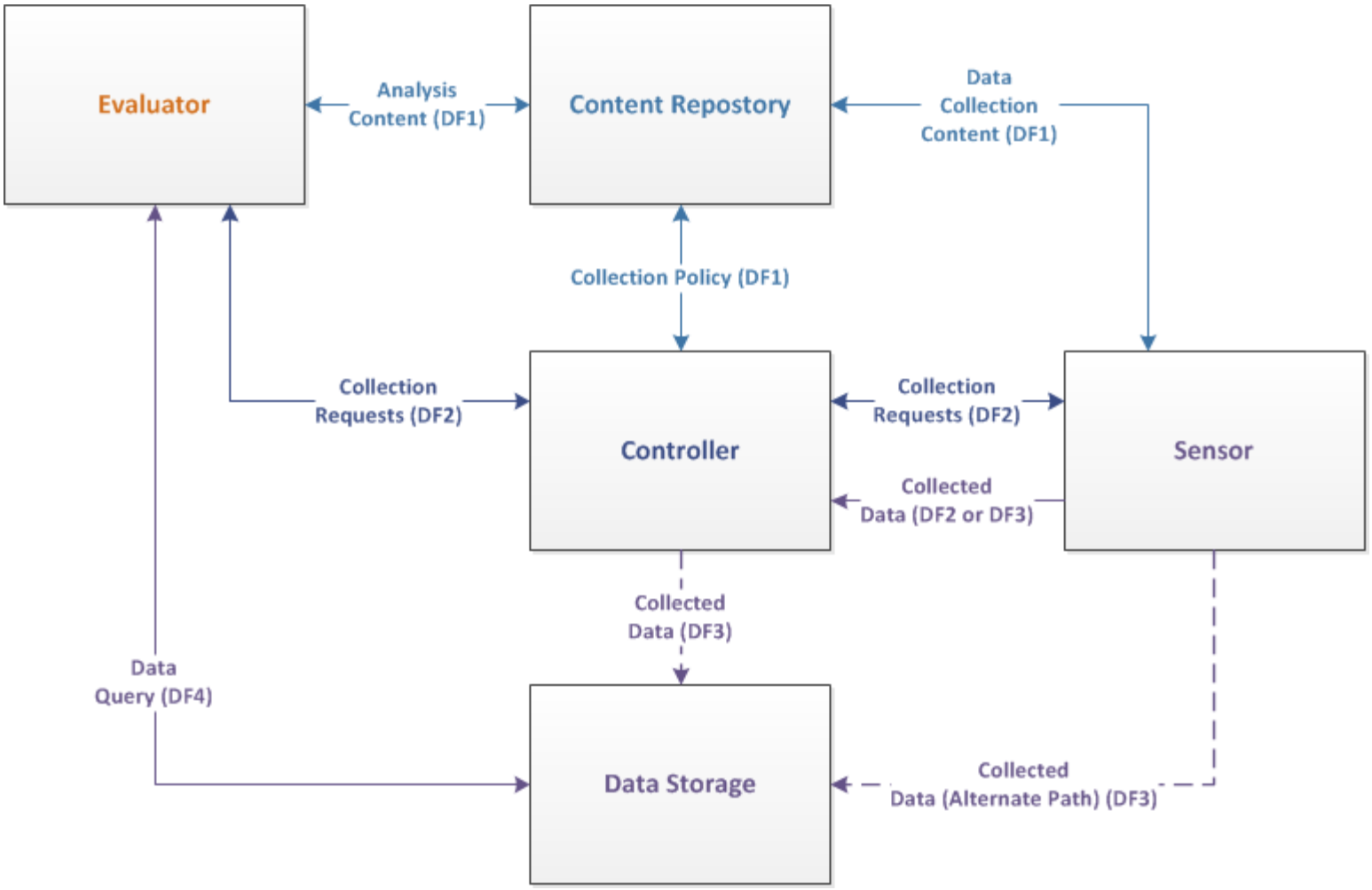
SACM Architecture

draft-waltermire-sacm-architecture-00

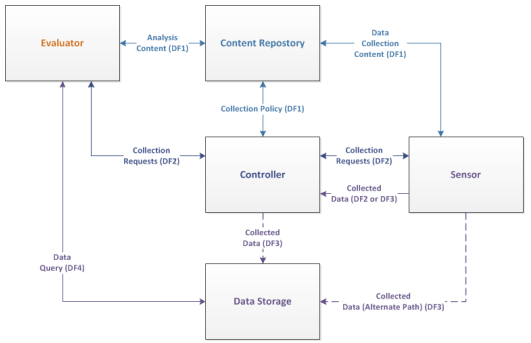
Overall Architectural Philosophy

- Leverage existing IETF and other international standards where possible
  - Leverage existing Layer 1 – 6 specifications
  - Profile or extend existing application (Layer 7) specifications
- Minimize the number of required data flows/ interfaces
- Keep it simple

SACM Architecture

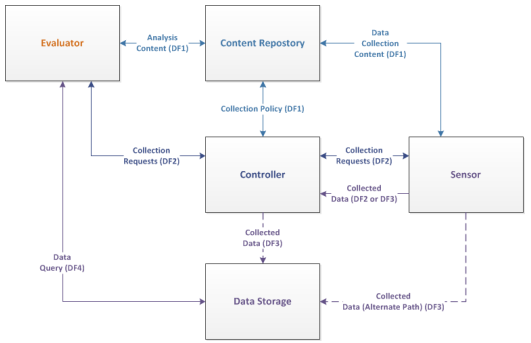


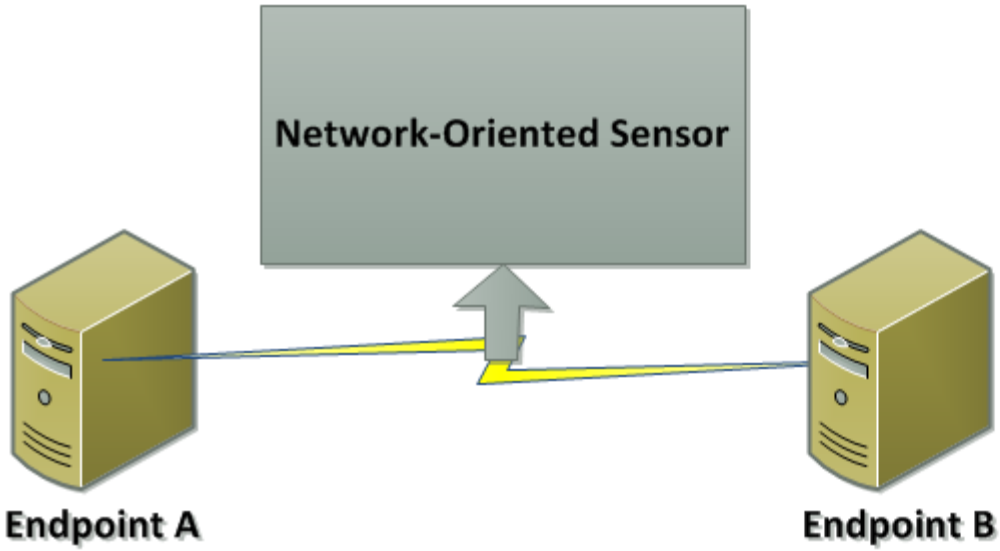
Data Flows / Interfaces

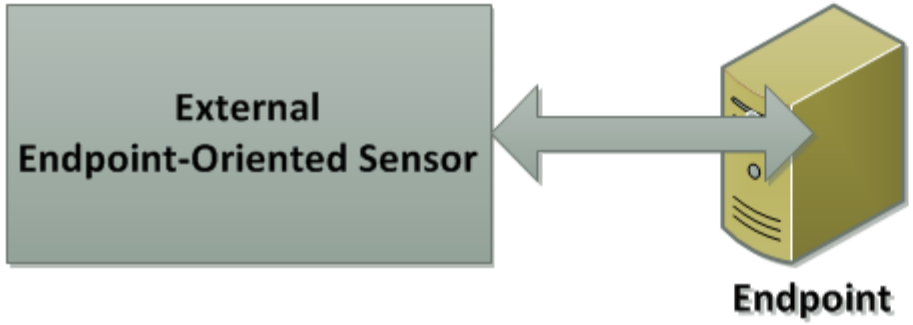


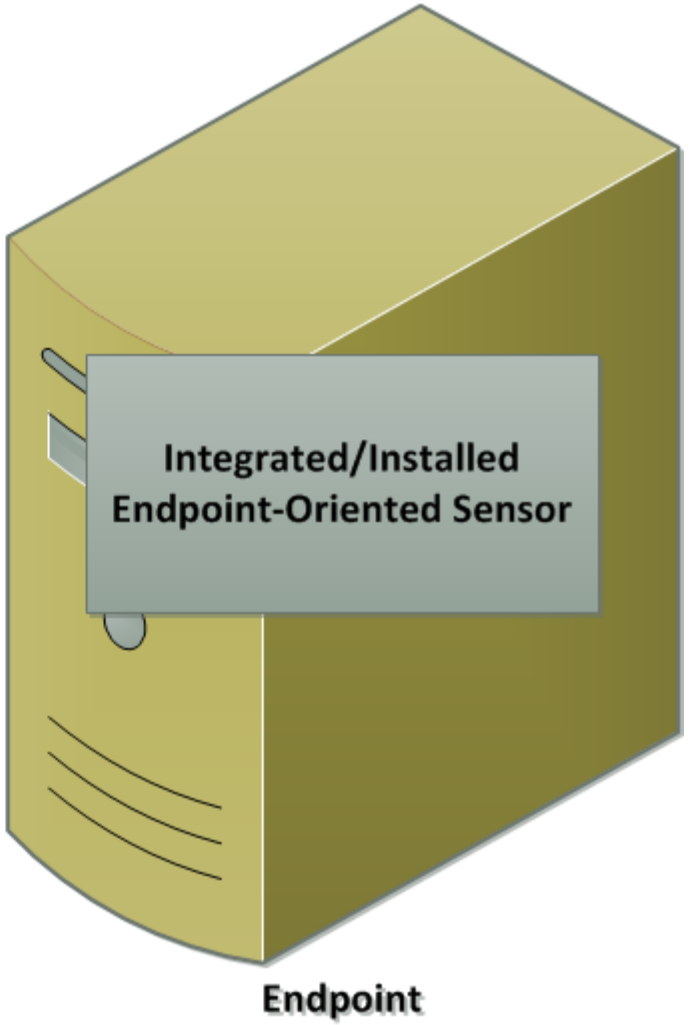
- DF1: Content Retrieval
  - Used to acquire content to drive data collection and analysis
- DF2: Collection Tasking
  - Used to orchestrate required data collection
- DF3: Collected Data Publication
  - Used to publish collected data to appropriate data store(s)
- DF4: Collected Data Query
  - Used to query previously collected data for analysis

Sensors


Evaluator
Analysis Content (DF1)
Content Repository
Data Collection Content (DF1)
Collection Policy (DF1)
Collection Requests (DF2)
Controller
Collection Requests (DF2)
Sensor
Collected Data (DF2 or DF3)
Collected Data (DF3)
Data Query (DF4)
Data Storage
Collected Data (Alternate Path) (DF3)


Network-Oriented Sensor
Endpoint A
Endpoint B

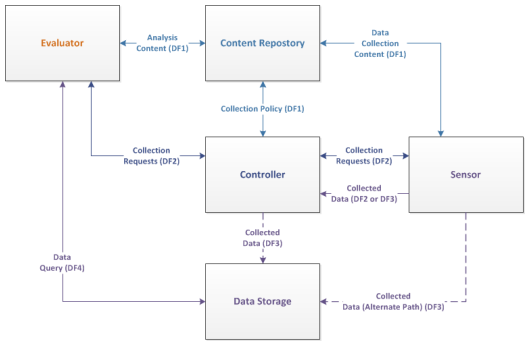

External
Endpoint-Oriented Sensor
Endpoint


Integrated/Installed
Endpoint-Oriented Sensor
Endpoint

Endpoint Sensor Data – Current Scope

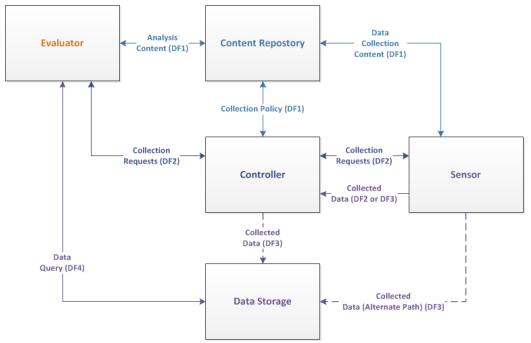
- Endpoint Identity
- Posture attributes
  - Hardware Inventory
  - Software Inventory
    - Operating System
    - Applications
    - Patches
  - Software Configurations
- Provenance data
  - Identification of sensor
  - Other sensor metadata/ context
- Entailment information
  - Collection methods
  - Additional context

Content Repositories



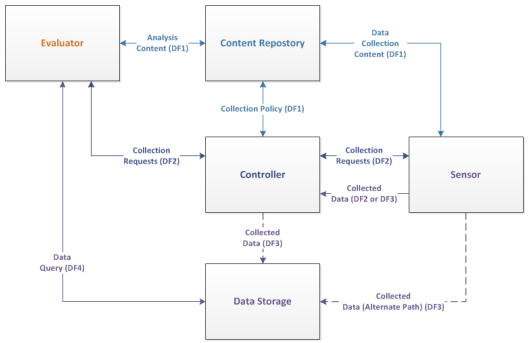
- Provided standardized, secure access to data that drives:
  - Collection policies (e.g. what, when, where)
  - Data collection activities (e.g. what)
  - Analysis activities (e.g. what)
- Data agnostic, resource identification approach

Data Storage

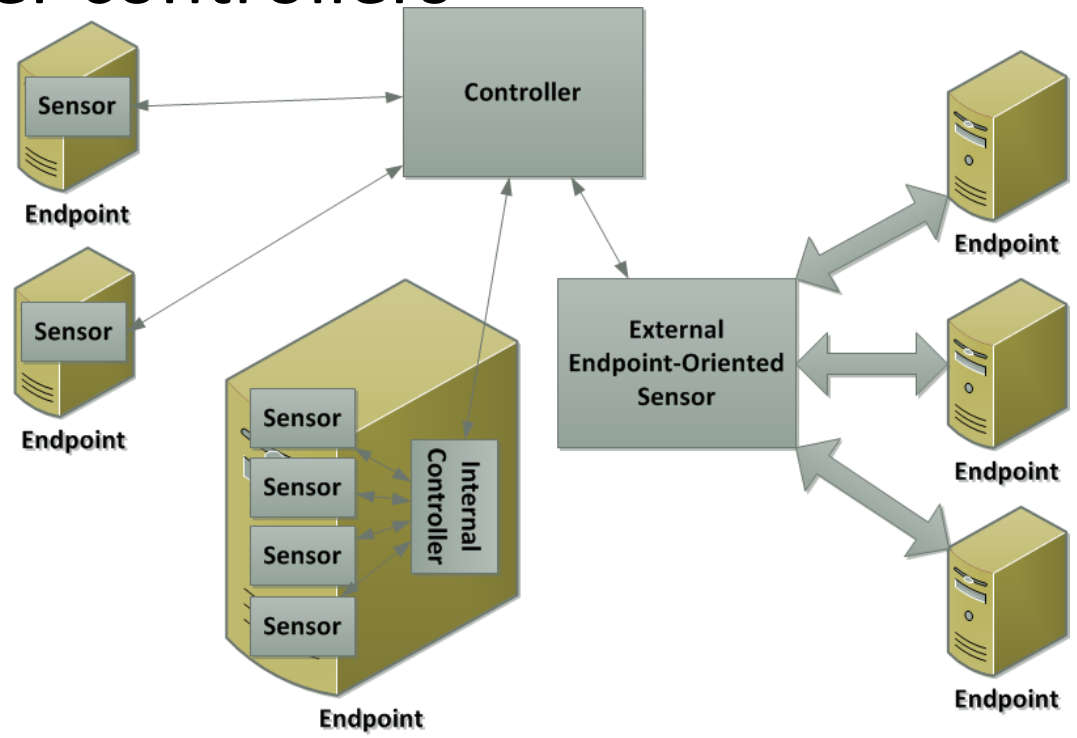


- Enables collected and analyzed data to be persisted
- Provides standardized, secure methods to publish and retrieve data
- Decouples dependencies between data collectors and analysis components providing architectural flexibility

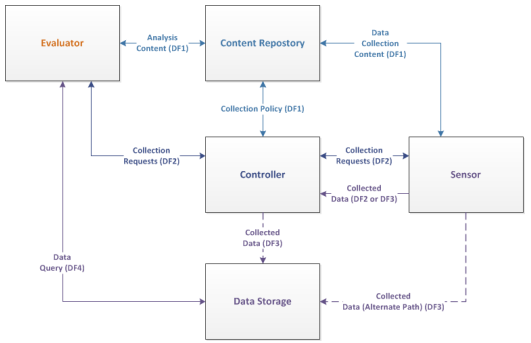
Controller



- Responsible for securely orchestrating data collection by sensors
- May manage other controllers
- Enables evaluators to request on-demand or scheduled data collection



Evaluator



- Performs analysis based on previously collected data
- Securely interacts with controllers to orchestrate needed data collection

Open Questions

- Sensors
  - Are network-oriented sensors in scope?
  - Are external endpoint-oriented sensors in scope?
- Controllers
  - Should controllers manage other controllers?
  - Should controllers manage content repositories or data storage?