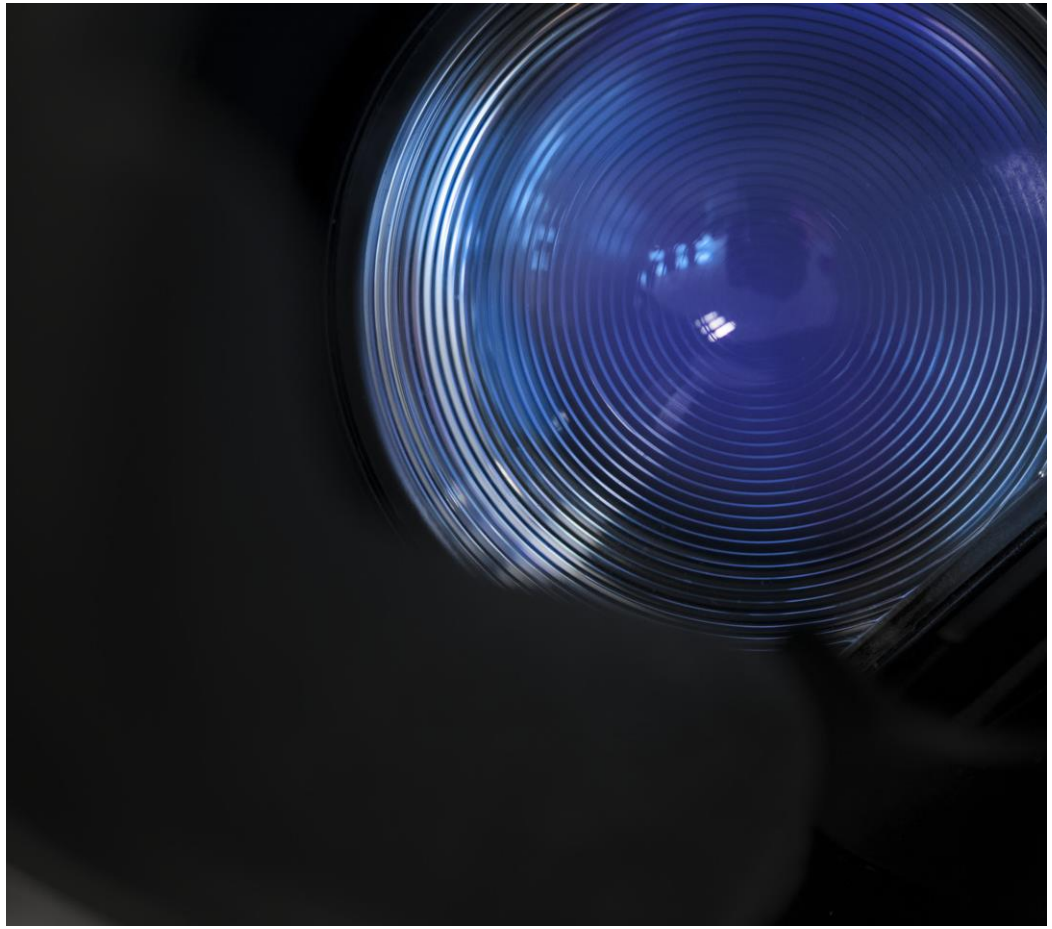
TE&IV in O-RAN SC
Opensource Contribution - Proposal

Information, plan & call for support

Content

- Open-Source TE&IV, reference implementation
  - O-RAN Source Community, SMO project
- A bit about TE&IV, topology, definition, context, goals
- Deep dive areas



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- Ericsson is proposing to contribute a new component to the O-RAN SC SMO project to develop a reference implementation for the emerging TE&IV
- The initial focus is on supporting rApps (R1 interfaces & models)
- The goals are to:
  - Accelerate R1 topology API specification
  - Collaborate with the activities in WG10 w.r.t. TE&IV IM and API definitions (Stage 2/3)
  - Garner early cross community support for some basic TE&IV concepts
  - Enhance the overall SMO and rApp (Non-RT RIC) DX & UX

- Community participation (beyond Ericsson) will be essential to the success of this activity

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- What is topology?
- How does RAN OM CM and TE&IV overlap?
- What do we want from a TE&IV?

What is Topology & Inventory?

Topology is important things and the relationships between them.

'Important' is subjective

- Broad definitions give
  - complex structures
  - too much data
  - slow queries
  - "Source Envy"

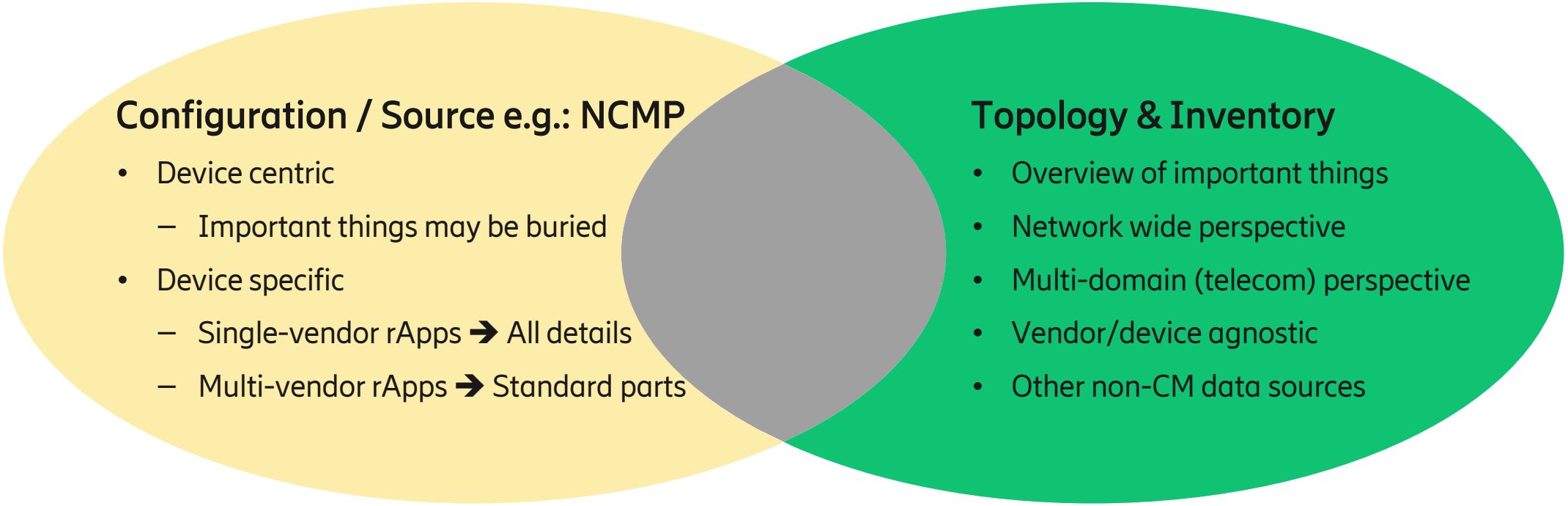
Opinionated perspective

- Initially rApp focused
  - rApp use case needs
  - Ease rApp development
- Portability & multi-vendor
- Facilitate rApp ecosystem
  - Move fast and break nothing

Principles

- Lean and lightweight
  - Just enough topology
- Grow with rApps use cases
- Aligned with and proving the standard
- Complement CM

Topology & Inventory complement Configuration / Source



No hard and fast rule to define a distinct boundary between CM and Topology.
There will always be an overlap.

APIs and Models

API provides generic access to any topology entity type.

- Separate LCM to model
- Less likely to change
- No cognitive load contribution when changing telecom domains
- APIs follow SemVer 2

- APIs are not impacted by Models updates

Models are domain specific and created in separate namespaces

- Namespaces have separate LCM
- Namespaces may be developed independently
- rApps (TE&IV consumers) depend on subset of namespaces, not all
- Models follow SemVer 2

- Models are not impacted by API updates

rApps declare which TE&IV namespaces they use

- Only relevant model changes will impact rApp
- Only .x version changes impact rApp
- Operators can easily determine which rApps will be impacts by TE&IV model updates

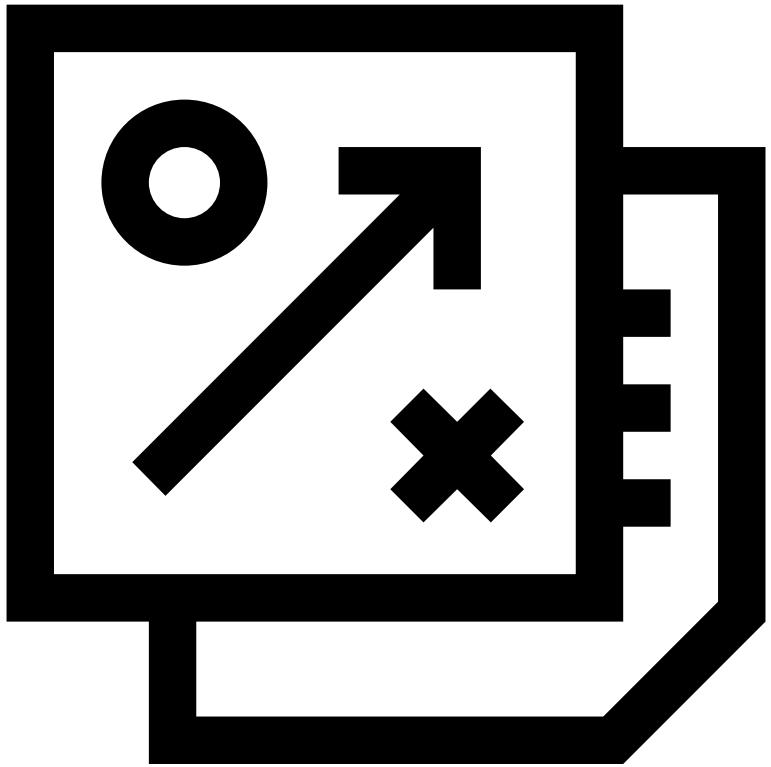
- rApps are only impacted by changes in namespaces they use

Balance

- TE&IV will not have everything that is needed by consumers. It is a complement for Configuration Management and other sources
- TE&IV uses CM and other sources as the ‘database-of-record’ for important things and their relations
- Custom queries, Classifiers, Collections and Decorators complement topology models

- TE&IV will evolve to support growing needs of rApps first. Other consumers will follow.

Expectations



- Development is needed to ensure a fully functional reference implementation in OSC
- Community participation (beyond Ericsson) will be useful to the success of this activity
- Avoid a proliferation of alternative implementations
- Inform, and accelerate the TE&IV Stage 3 specifications

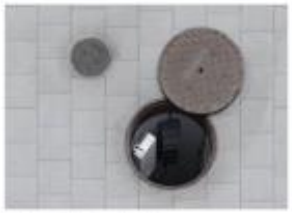
Deep dive areas

Modelling

- Where does the TE&IV information model sit in the overall O-RAN information model?
- How do the O-RAN information models relate to O-RAN data models?
- Where do we need to do data model mapping?
- How are TE&IV information models structured?
- Which TE&IV information models are identified?

How does TEIV IM fit in ORAN IM

Basic abstractions



- Basic primitive (OO abstract) concepts needed for TE&IV
- Possible future (plans) in TE&IV

Information model fundamentals

Model LCM

- How is the Topology & Inventory Model updated?
- How is disruption avoided when the TE&IV model is updated?

Adding models to TE&IV

Upgrade

- Stability of the rApp ecosystem is essential. Upgrade of TE&IV needs to
  - Avoid abrupt non-backwardly-compatible changes that require upgrade coordination
  - Limit the impact on rApps to only the TE&IV namespaces that they use

TE&IV upgrade principles

Consistency

- How are heterogeneous sources handled in topology and inventory?

Eventually consistent data

Access control

- How are topology and inventory updates controlled?
- Who can write to different topology and inventory entity types and attributes?

Protecting TE&IV data

Discovery & Reconciliation

- How is Topology & Inventory populated?
- How are heterogeneous sources managed?
- What is responsible for maintaining consistency?

Populating & maintaining TE&IV data – not in scope of project

ID Handling

- How is the Topology & Inventory related to source domains?
- How are heterogeneous identity schemata handled?

Handling multi-domain IDs