

# IVY Boundary

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<https://github.com/ietf-ivy-wg/network-inventory-yang/issues/35>

# Agenda

- Setting the scene
  - Some scoping definitions
  - A pictorial boundary of the IVY focus
  - A broader assessment showing more things out of scope
  - A deeper assessment of Physical and Informational things
  - Overview of full assessment scope
- Defining the boundary
  - In scope for IVY modeling
  - Out of scope for IVY modeling

# Things

- **Physical:** A spatial thing potentially of substance. Can be measured with a ruler and sometimes weighed with scales, does nothing by itself, has serial numbers sometimes.
- **Functional** (Logical/Virtual etc.): A thing that does something, has behavior, achieves outcomes etc. Cannot be weighed or measured with a ruler.
- **Informational:** Collections and structures of data, information, insight, knowledge, etc. Does nothing, cannot be weighed or measured with a ruler.
- **Motivational:** Force (electrical power etc.). Causes the physical things augmented with information to give rise to specific functions.
- **Asset:** An item owned by a person/company (property) considered as having value (being useful).
- **Resource:** A component or commodity that can be used in a valuable way in the performance of some activity.

## Positive Things

# Examples of things

- **Circuit pack:** A physical thing, a resource and potentially an asset
- **Termination Point:** A functional thing, a resource, but not a formal asset
- **YANG Model (text):** An informational thing, a resource, but not a formal asset, gives rise to functionality when installed on a powered equipment
- **Software image (binary):** An informational thing, a resource, potentially a formal asset, gives rise to functionality when installed on a powered equipment
- **CSV data (text):** An informational thing, a resource, not a formal asset, does not give rise to functionality

**Note:** Motivational is not an ideal name... alternatives welcome.

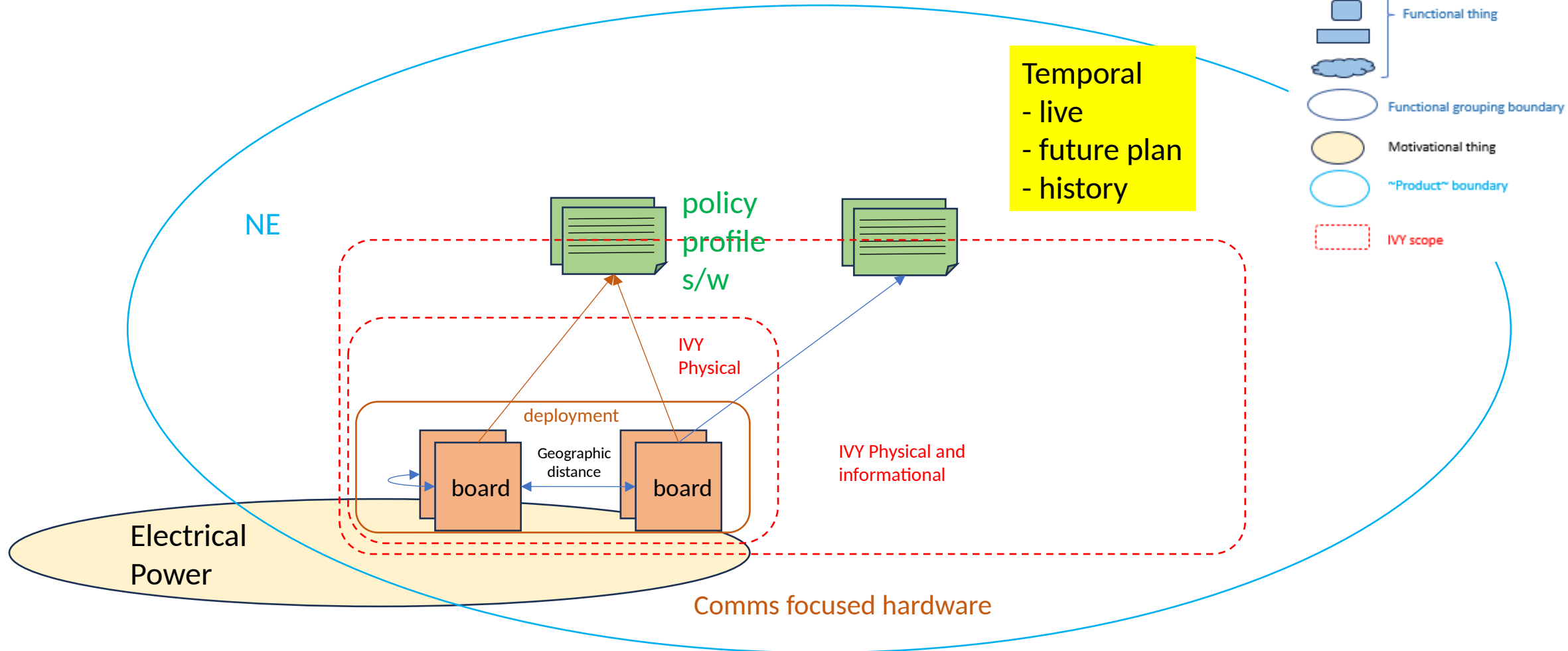
# Inventory

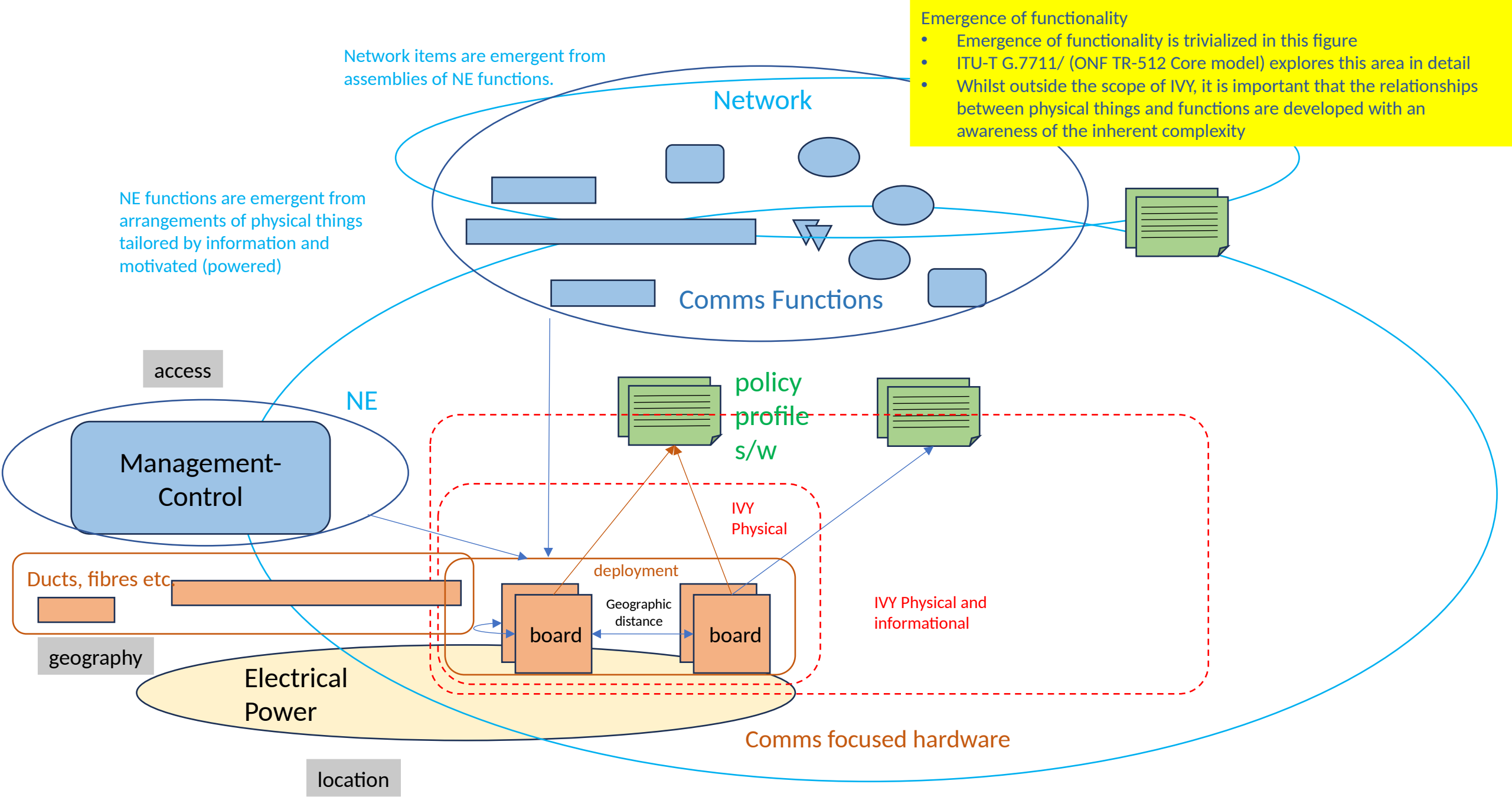
- The English word “Inventory” only means “a complete list of items”.
  - Any items
  - Only a list not a structure
- This could be stretched to lists of items in defined places.
- A key goal of IVY is to construct a model of the structure of physical things.
  - This is extended to cover some types of informational things
- The term Inventory in IVY essentially means:
  - The model of structure of some types of physical things
  - The model of structure of some types of informational things

Note that IETF already has plenty of model of functional things

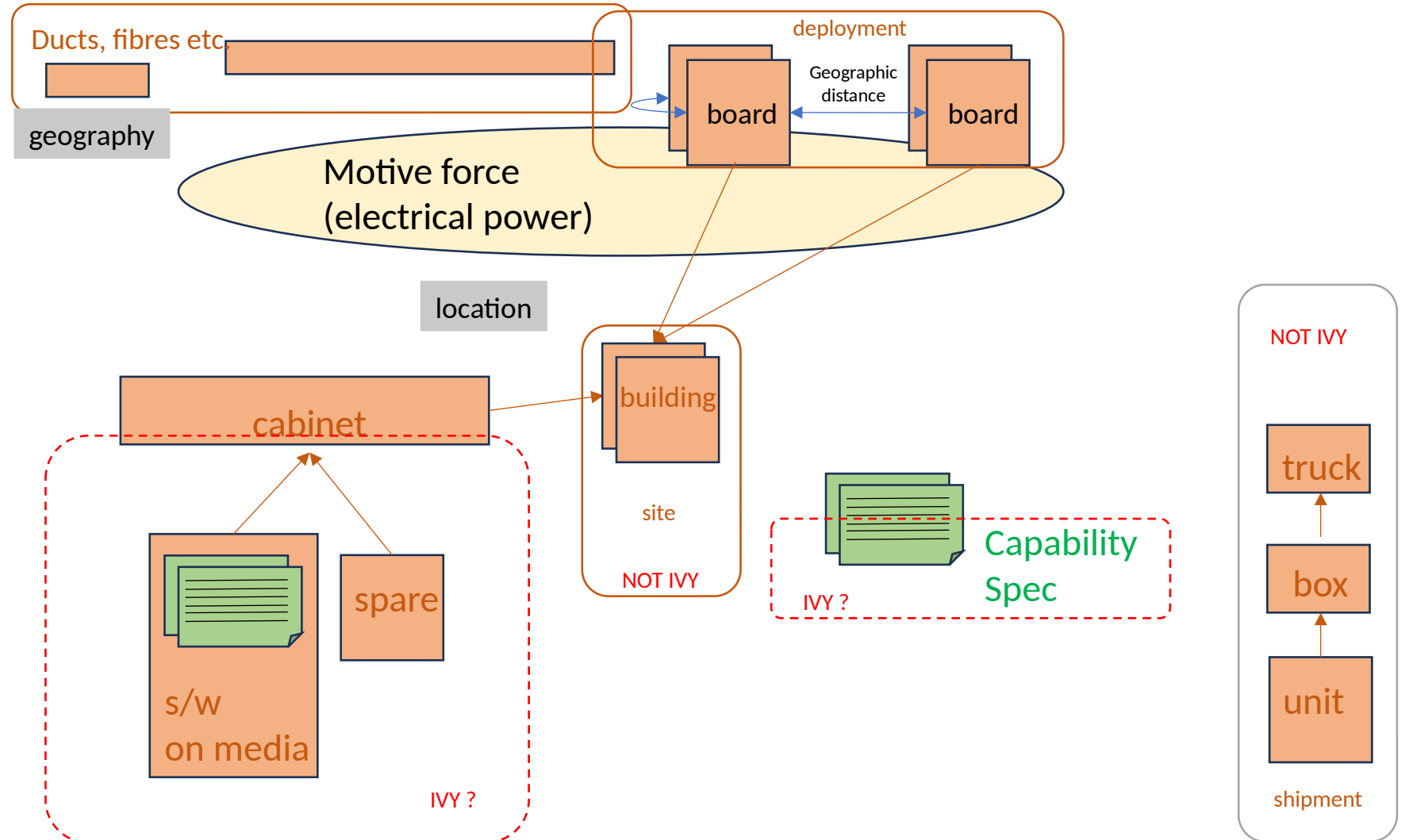
# IVY boundary

## Narrow focus



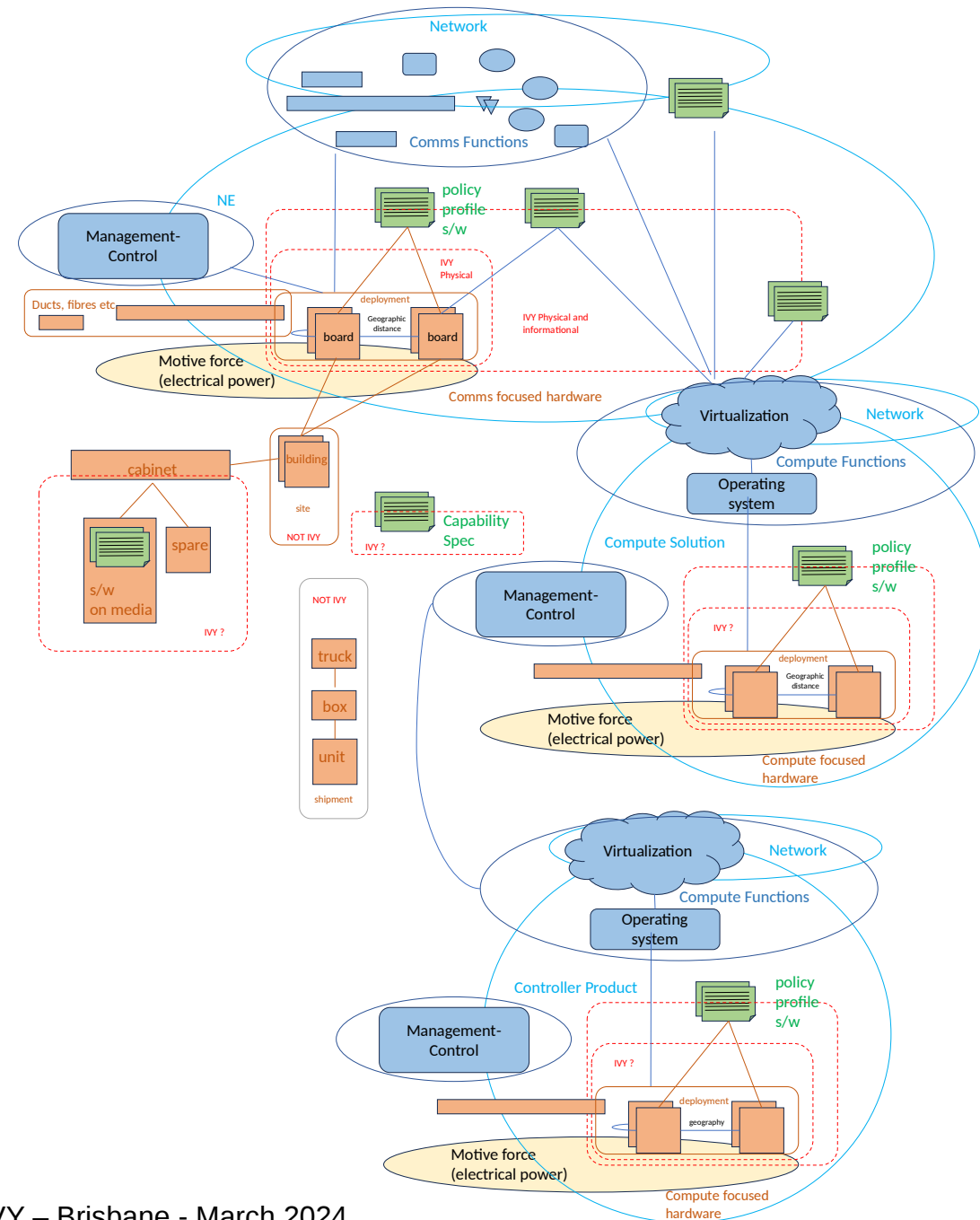


# Deeper assessment of Physical and Informational things



# Full scope Assessment

- Scope assessment accounts for:
  - Virtual Nes
  - Controller structures
  - Standard compute
  - Etc.
- The aim of the assessment is to ensure the boundary is well defined





## In scope for IVY modeling (proposal)

- A circuit-pack that is capable of providing comms (telecoms) functions or directly supporting them (including some compute circuit-packs) and is
  - Powered and can be discovered by a controller
  - Planned
  - In a spares cupboard?
  - In the asset management system?
- The abstraction of
  - Effect of a chain of fiber strands (forming an adjacency)
  - Geographical information
- Relationship from modeled thing to
  - Another modelled thing (circuit-pack to circuit-pack etc.)
  - The location in terms of
    - Building
    - Geography
  - Functional things
  - Fiber/cable
  - Power capabilities and potentially circuit-packs
  - Circuit-packs etc. that support a virtual NE
  - Access to information (such as control port on a device)
- Extensive lifecycle aspects of things that are modeled
- Software data (files etc.)
  - Installed on a modelled circuit-pack
  - Available to install on a modelled circuit-pack
  - Including type/version
  - Capabilities and compatibility data
- Relationship between modeled software and modeled circuit-pack
- The statement of capability/compatibility of a modeled thing including
  - Circuit-pack
  - Software data
  - Software data and circuit-pack combination

## Out of scope IVY for modelling (proposal)

- A circuit-pack that is
  - being built in the factory
  - being shipped from the factory
  - being repaired in the factory but is still in the operator asset database?
  - not related to a comms function
  - in an air conditioning unit
  - in a server in a data center
  - supporting a PNC
  - a passive component in a patch panel?
- A cable
- A fiber strand
- A duct
- A manhole
- A building
- A truck
- All functional things
- All motivational things
- Any informational thing that is not
  - Software that can run on a modeled thing
  - Information other than software and capability statements
  - Capability statements that relate to a modeled thing

**Note that on this slide circuit-pack = board, card, SFP, backplane, sub-rack, FRU (a circuit board assembly with electronics)**

## Conclusion

- It is vital that the IVY work is clearly scoped and has a clear boundary
- Coarse categorization of things has been shown to help in the boundary definition excluding large area
- Some aspects are still uncertain and need to be further explored
- Examples, whilst not exhaustive, help clarify the boundary

## Next steps

- Continue to refine boundary by providing more examples
- Agree boundary with the team

Thank you!!

Questions?