

Notes to Meeting 2017/2/24, 11:00

2017/2/24, 11:00-12:00 noon GMT, via telecon / webex

Objective:

Recap outcome from previous telecon on 26/1/2017, and explore a way ahead to achieve (or at least progress) sub-group objectives.

Agenda

As listed in the webex call:

1. 5 min recap of last meeting
2. 45 min Attempt to follow Hedley suggestion, see how far we get.
3. 5 min Summary, agree next steps.

For reference, the Concepts listed from MDA Guide 2.0 are:

- System
- Model
- Modelling Language
- Architecture
- Architectural Layers
- Transformation
- Separation of concerns
- Platform

Current materials can be found on the subgroup wiki page at

http://www.incosewiki.info/Model_Based_Systems_Engineering/index.php?title=MBSE_%26_MDA

Attendees

Julian Johnson

Ian Clark

Chris Raistrick

Alistair Blair

Fran Thom

Apologies

Hedley Apperly

Notes to meeting

1. JJ summarised the outcome from the earlier telecon on 26/1/2017. This had included summary of status of material on the subgroup website (as above), the different

interpretations of MDA (PIM > PSM, termed 'focussed', and the more general cross-model transformation, termed 'wider'), and illustrated by diagrams in JJ and Chris R materials. References were made to the challenges of interpretation to models and MDA, specifically cited by Ian, associated with systems versus software discipline interpretations. Suggestion of a Guide: 'Applying MDA to MBSE'. There was also mention of the concepts referenced in the OMG MDA guide (listed in Agenda section above). Finally, potential to use these concepts as framework to brainstorm topics for a Guide (Hedley).

2. There was a more wide-ranging discussion, than possibly the intent of the agenda item 2, initially continuing to explore this systems / software interpretations of MDA / MBSE. Fran noted interpretations of 'architecture' and 'system' could be different. Chris noted appropriate use of SysML blocks at architectural 'level' could ease mapping to software. Fran noted that a higher level of engagement between systems and software was often key to improved dialogue, but often same terminology – with different meanings – could lead to difficulties. Interpretation of 'model' was similar.

Ian noted that use of the same example [across systems and software] could ease communication, and that the support tools were starting to help – in making it easier to exchange materials between systems and software communities. MBDA has been exploring MBSE / MDA 'education' with a toolset, but challenges where software engineers using a different 'model'.

Alistair noted that a useful point [in this 'systems – software' dialogue] was "concern", namely what specific concerns both systems and software persons tend to or need to focus on. In addition, Alistair reported that engineers/architects (across Systems and Software) tend to have different interpretations of the term "concern". (JJ noted in the meeting, stakeholder Concerns are very much at the heart of the distinction explained in ISO 42010 between viewpoints and views – he shared a diagram – see Figure 1, a metamodel from ISO 42010, illustrating this point).

Fran noted issues seen on developments with fast jets (two mentioned), with systems engineering focussed on input – function – output, input – function – output chains. JJ noted that this functional chain view he had seen, and it was driven by a need to look at being able to declare (as requirements) associated performance on these functional chains (e.g. throughput, time response, accuracy of calculation). Fran noted the functional mapping into HOOD designs (indeed any software design method not just HOOD) meant that software people were inclined to (had to) break the i-f-o chain and align it to the software architecture (perhaps a picture would better explain this?).

Alistair noted that in his view software people were not using MDA, they don't think MDA. JJ noted in his limited experience it was clear that someone thinking MDA down to a software implementation was thinking very differently to someone applying conventional OO approaches. (JJ Post meeting note: it seemed to require a different mindset and different skills, for instance, he could see the domain modelling / partitioning approach applied and described by Chris being evident in the work JJ had been involved with).

Alistair described how he was exploring this area using a cross-discipline modelling team, and throwing at them a problem. He anticipated this being worked up with a monthly webex, and quarterly face-to-face meeting.

Fran mentioned Alistair's point "mashup of requirements", and elaborated. A mashup of concerns is probably equally appropriate. The application of views and viewpoints (42010) is typically used to separate different concerns in an MBSE context. However, 'traditional' systems engineering rarely applies views and viewpoints to requirements engineering – being limited to functional, performance, safety yet non-functional (transverse) concerns are not always formally separated and addressed in an integrated manner. The problem may stem from the lack of a common currency between concerns – Fran noted: he seemed to remember Alistair mentioned the monetisation of concerns.

Alistair hoped to work something up over a 'couple of months' time frame.

Ian remarked that he would very much like to use a similar group within MBDA to (perhaps) echo this. He offered to work up a plan with Alistair as to how to do this, outline timescales, perhaps use the same approach within MBDA [as at Thales]. He was confident there was potentially for some level of sharing of the information and experience. Post meeting update; MBDA Systems (MBSE Community of Interest members) and Software (MDA Special Interest Group members) ready to support the exercise.

3. JJ agreed to produce notes to the telecon (this document). If the attendees could check for any major omissions or errors, we could then revise and post to the Wiki.

Ian and Alistair will liaise directly to work up an approach to determining the most common interpretation of MBSE/MDA terminology within both Systems and Software communities. In addition, Alistair will share results of an experiment in which Systems and Software Architects/Engineers will be invited to tackle a common problem by whichever method seems natural/instinctive. The purpose is to determine commonality and diversity of approach, and how they align with MBSE & MDA. JJ can host a subsequent telecon / webex to take stock of progress, perhaps in around 4 weeks.

JJ thanked attendees and closed the meeting.

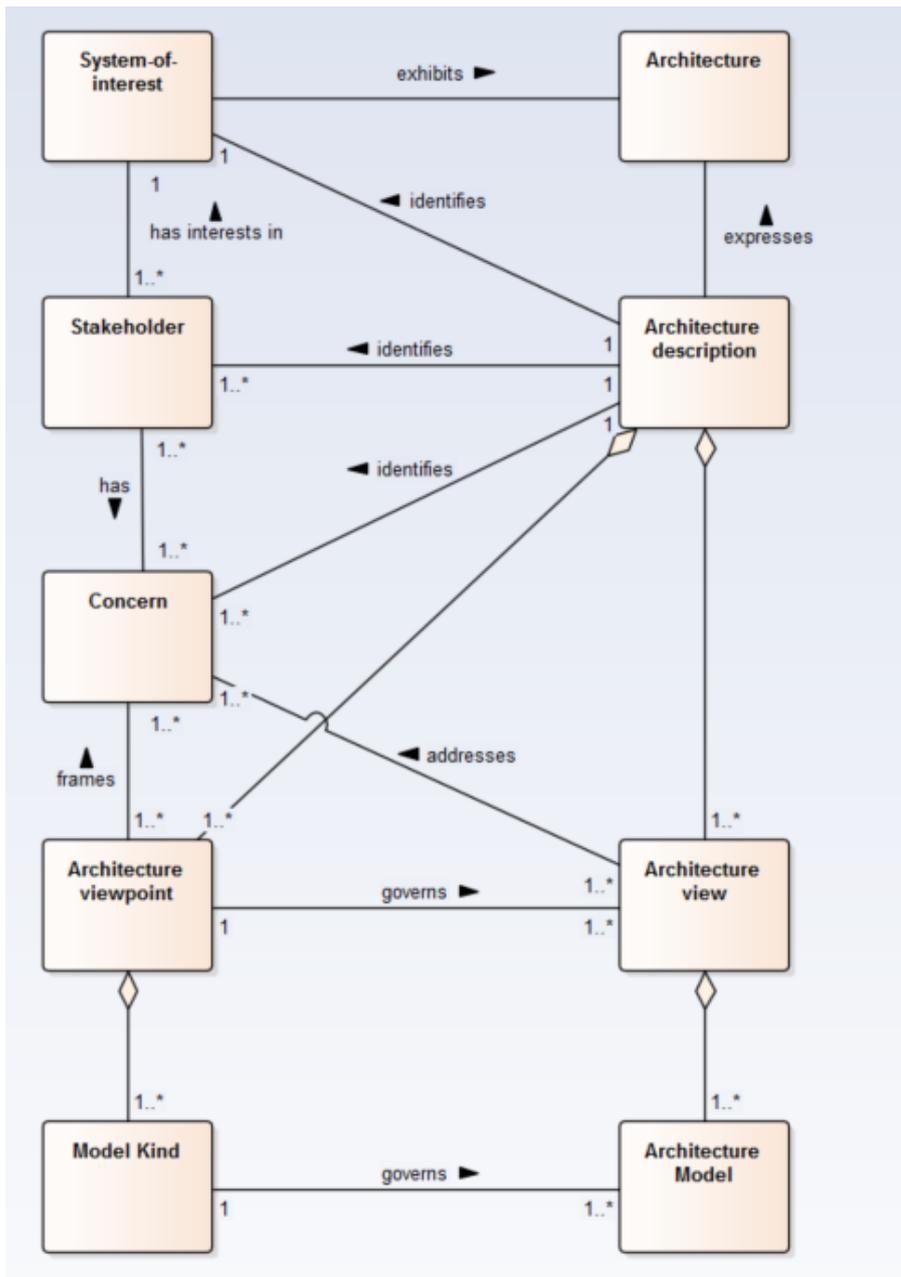


Figure 1 From ISO 42010 (subset)