

SOA-RAF Outstanding Issues Strawman

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covering sections 1 to 3 only

Menu

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 - General editing issues
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 - SOA-RAF, Ecosystem, and System explained
 - From Goals to RWE
 - 'SOA Ecosystem' Model
 - 'SOA Action' and 'SOA Semantics' Models
- Dessert Trolley (optional)
 - Viewpoints
- To-Go box / Doggie Bag (reference to take away)
 - Stakeholder vs Actor comparison table
 - Editing principles
 - Ancillary changes proposed

Objective of Strawman

- Identify sticking points and propose solutions
 - A ‘narrative’ of the issues that the editors think need to be underlined and/or clarified
 - ‘Traffic light’ system
 - let’s try to stop only at red lights
 - Blue light: info/input needed
 - Summary of some assumptions
 - Indication of some general editing principles and ancillary changes proposed
- Give feedback to editors (esp. for section 3)
 - In form of guidance on key terms and flow, not specific wording (editors have plenty of edits and texts available)
- Action for the TC, members and editors

Action

- For TC
 - Objective of 8 Dec call is to seek consensus on high-level understanding of some problematic terms and intended meaning
 - Aiming for green lights across the board
 - Leave a red light where a problem remains and needs further discussion
 - Flag other issues that are also considered problematic but not covered here
- For (Section 3) Editors
 - Issue list of red light items (deadline: ?)
 - Indicate existing materials and possible dispositions already considered
 - Proposed text disposition (deadline: ?)
 - for all green light items
 - for all other changes
 - Map proposed dispositions to this and existing issues list
- For Members (deadlines: ?)
 - Contributions on list to those red light items
 - Comment/validate proposed dispositions for green light items

General editing issues

- **Our Objectives:**
 - Clarity
 - saying things differently, in clearer language
 - try to avoid saying different things, except where necessary
 - Address ambiguities in existing text
 - Identify problem areas – see slides 9-12
 - Eliminate contradictions
 - Attempt greater precision
 - Tighten definitions and wording
 - Use formal definitions when common sense understanding cannot prevail
- **Note:**
 - If something is not in this strawman, it does **not** imply that it's not important, only that we haven't picked it out as a problem
 - Issues below are presented in more lay, prose style
 - **They are *not* formal definitions**
 - **They are *not* proposed dispositions of text**
 - They are written in a way to help us discuss the high-level understanding
 - Devil may be in the detail but editors need to be sure they are working on the right details
 - We haven't covered sections 4 or 5
- **Key to colour markup:**
 - Issue/Point taken for granted, editors assume consensus, no discussion
 - Issues highlighted by editors as requiring change, should be uncontroversial but may need to clarify if consensus exists
 - Changes that may need further discussion & orientation
 - Open question that needs discussion and decision

SOA-RAF, Ecosystem and System

- Nature of RAF
 - A continuum of architectures, from most abstract (RM) to system-specific
 - RAF is both an RA and a foundational architecture (TOGAF)
 - RAF defines Viewpoints, which guide architects in creating specific views and models
 - But the RAF is more than Viewpoints, it is an RA, with architectural description using models and views
 - Refer to “SOA-RAF” throughout, except when emphasising the distinction between RA’s in general and “*this* RA” in particular
- Ownership boundaries
 - boundaries can be within as well as between enterprises
- Ecosystem (vs System)
 - Ecosystem is key to understanding execution context – the elements that allow business to be conducted in an SOA-based system
 - Ecosystem is system + environment + people
 - People = natural (human) persons **and** legal (enterprise) persons
 - People are stakeholders in the ecosystem
 - Ecosystem has stakeholders, systems have actors
 - “Social Structure Model” is more correctly the “SOA Ecosystem Model”
- > We have a “SOA ecosystem” and “SOA-based systems”
 - Ecosystem includes stakeholders
 - SOA-based systems limited to actors
- Participant
 - Is a person who is both a stakeholder and an actor, and bridge between ecosystem and system

From Goals to RWE

- Goals, Needs & Requirements
 - Goals are what stakeholders strive towards
 - “The purpose towards which an endeavour is directed”
 - Needs are what stakeholders seek to have fulfilled
 - Inherently intractable, not always expressed with precision
 - In order to be satisfied, a Need has to be expressed in a tractable form: this is the function of a ‘Requirement’
- Objectives, Capability, RWE
 - Requirements are expressed in terms of objectives (SMART*)
 - Aim of service is to
 - leverage a capability (potential of service), in order to
 - deliver a Real World Effect (actual, invoked service)
 - that *meets* an objective (and, btw, contributes towards a Goal) and
 - *fulfils/satisfies* a need

* In project management, the acronym for the essential characteristics of an objective – Specific, Measurable, Achievable, Relevant and Timebound

SOA Ecosystem Model

- Was called 'social structure model'...
- Social structure
 - provides context in which facts take on meaning
 - Has formalized procedures (was 'rituals') to establish validity of particular facts
- State
 - Set of facts that are true about an entity at a particular time
 - Potentially unbounded; in SOA, we are concerned only with the subset that is potentially measurable and useful in a given context > shared state
 - Shared state is knowable by, and **may** be accessible to, other actors
- Policy
 - Something a stakeholder commits to uphold, on a continuing basis (unlike one-off objectives)
 - If possible and necessary, is enforced according to stated constraints
- Contract
 - A set of promises (contractual terms) made or legally agreed to, by n participants, to do something
 - Set of constraints governing behaviour and state required to fulfil those promises
- Commitment
 - Not sure we need to define it formally, but if we do:
 - "An objective explicitly stated by a participant"

SOA Ecosystem Model (2)

- Role
 - not a first class citizen in the models but an associative relationship
 - Consumer, etc is a role not a sub-class
 - Same person (participant, etc) can play different roles (consumer in service 1 and provider in service 2)
 - > critical distinction for understanding of SOA: stakeholders & actors can play different roles in different contexts
- Mediator
 - ? is a registry a good example? Do we have better ones? Is it more than mediator?
- Permissions reflect obligations
 - “party 1 is allowed something from party 2” implies “party 2 has +ve obligation to party 1”
 - “party 1 is prohibited something from party 2”, implies “party 2 has –ve obligation to party 1”
- Predetermined constraints
 - Right is a predetermined permission
 - Responsibility is a predetermined obligation
 - ? Are permissions *a priori* checkable and obligations not? Is it important to state this?
- Skill is a human capability; Qualification is recognition of a skill by an authority
 - Formally, a skill is a role represented as a n-ary association between a human, a certain level of competence (skill level) and a given domain (“he’s an ace with modelling tools”, “she’s good with C#”).

SOA Ecosystem Model (3)

- Resource
 - An **asset** with (different) value to different people
 - Important in SOA that a resource has identity
 - Resources can be identified in a myriad of ways
 - but many are context-dependent.
 - SOA needs to unambiguously identify resources at any moment and in any interaction – interactions which may not be predictable because SOA operates across ownership boundaries.
 - Unambiguous identity is achieved with unique identifiers
 - every resource must have at least one
 - must resolve to the intended resource
 - ? must an identifier be “any sequence of characters”? “a token”?
 - (BTW: Not covered in the text: fungibility - does it need to be? How do you uniquely identify non-fungible resources as distinct from use of that resource in a specific action?)
- Ownership
 - Set of claims expressed as rights and responsibilities regarding a resource
 - Problem: does it **always** include the right to be transferred to another? (think of licenses and licensing rights)
- Ownership boundary
 - Extent of a claim made over a resource (within a domain?)

'Action' and 'Semantics' Models

- Action
 - Includes intention to achieve a desired effect or objective
 - SOA concerned with specific type of effect – RWE
 - actual RWE may include effects that go *beyond intended* effect of an action
 - Not necessarily the same as *undesirable* effect (= bug, error)
- Objective
 - The measurable change to the shared state of 1..n entities (aka RWE) that an actor intends to achieve and that is relevant to 1..n participants
 - Achieved by joint action
- Joint Action
 - Importance in communication and messaging
 - Communicate with other actors – communicative action
 - A message with payload that delivers capability (or part thereof) – service action
 - However, need to clarify Joint Action Vs choreography?
 - If joint action is not choreography, is it, simply, interaction?
- Semantics and Semantic Engagement (SE)
 - How an actor effectively processes and understand assertions made
 - Critical to understanding of why SOA is so different to 'stovepipe' systems
 - SE is process by which actor engages with a set of assertions, and based on that actor's interpretation/understanding of those assertions

Which Viewpoints?

- 1st one is problematic, as it seems to cover all stakeholders
 - The concerns addressed by this Viewpoint are not as clear as for other Viewpoints
 - ? Do we need this to be revised?
 - “Ecosystem View” is used as placeholder for the moment
 - ? what do we call it? “Participating in SOA View”?
- ? Who are the stakeholders for each viewpoint?
 - All the stakeholders?
 - All the constructors?
 - All the owners?

Assumptions about stakeholders and actors

Stakeholders...	Actors...
Are always people (whether natural or legal person)	Can be people but not always, particularly in SOA-based (IT) systems
tend to express themselves in imprecise terms or in higher-level 'policies' and principles	express themselves in terms of defined and clear actions
have (enterprise) goals, (individual) needs, which are generic, immeasurable/difficult to measure	work with/to requirements and objectives, Which are specific, measurable
are the protagonists in the ecosystem, often within social structures	are the protagonists in the system
are "agents of business" working in an ecosystem (participants) or affected by the ecosystem (non-participants)	Are "agents of action" ? Do we talk about 'automated agents' or 'non-human actors'? ? If all action implies intent , can a non-human actor have intent? or just following orders?
Ecosystem is generally a peer network of stakeholders But stakeholders can exist also within (hierarchical) social structures	System is a network of actors. An actor qua actor has no 'skin in the game' – no stake to hold. Not problem for delegate (works according to a 'script')
One stakeholder can work on behalf of another ('Power of Attorney') ? Is this also Delegate? Different? Need to model it	One actor can work on behalf of another ('Delegate', 'automaton') ? What do we call a non-human actor?

General editing issues (2)

- Coherence
 - Keep related definitions together
 - Make prose flow better
- Concision
 - Excise redundant and orphan text, and reduce/remove definitions or explanations that add nothing to models
- Minor edits
 - Simplify blue-highlighted hyperlinking
 - only use, if at all, in first instance of mention of a defined term within a section

Ancillary changes proposed

- Section on the UML
 - Move explanation of the UML to an appendix
 - Keep explanation of choice of the UML as 1.3.2. and its role as a methodology proposed by viewpoints to create models
 - Indicate limitations of the UML in fully describing RAF principles
- “2.2. Principles of this architecture”
 - Rename Principle 3 to ‘Distinction of Concerns’ (not Separation of concerns’) – the concerns are not completely separated between the different viewpoints
- Formalise much fewer terms
 - ‘prose’ is more than adequate for many terms
 - Especially when common-sense understanding is intended