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Specification v0.9.0 Pre-Alpha

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**Krister Kittelson (https://autocare.communifire.com/people/krister-kittelson)** ▮▮▮▮▯   ⋮
10/26/2020

Hello, All,

I've been writing up the next rev of our specification. Particularly I've modified and expanded the "Interaction Model" section to include a precise definition of the plan, and how it is the actual agreement, vs. the plan document, which is a snapshot of that agreement. The document is used to confirm unambiguously that the two actors' understanding of the agreement is current and shared.

It seemed clear that we needed to have language and structure around the whole Sandpiper process that includes the actual connection and handshaking required to proceed. I've added a higher level, the "Connection", that covers this process. Actors make a connection, they authenticate, they agree on the course of action, and then they proceed. Additionally, there's some information that's not part of a connection but is required: the actors themselves, and their agreement, which must be present before proceeding. I've called this "The Extricate", meaning it's extrinsic to the whole process, and can change over time (which must be accounted for). Thus I didn't call it the "predicate" since it does need to come before, but also needs to be considered throughout. Here's a summary image:
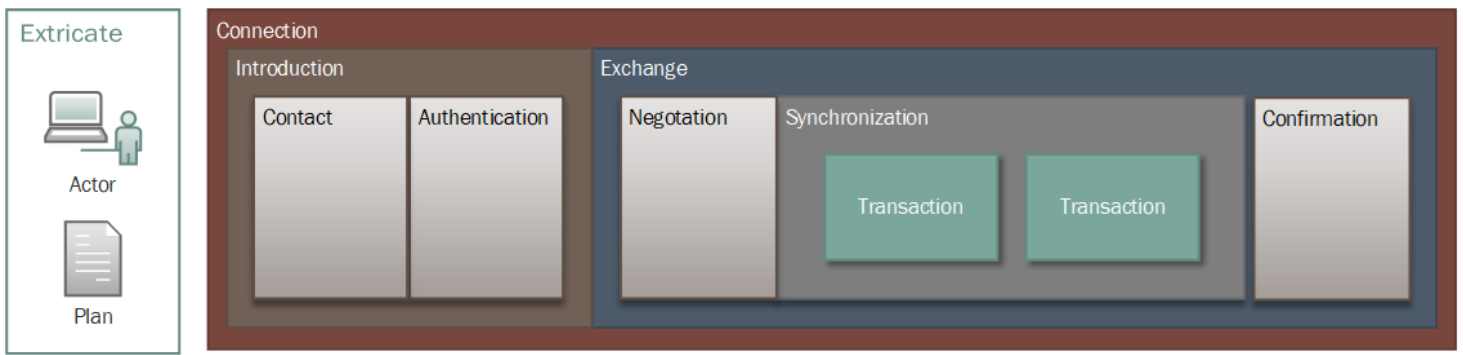
Here's the logical breakdown:

1.   Outside well-defined communication channels, objects and roles are established. This segment is known as the *Extricate.*

      1. A system or human employing Sandpiper is known as an *Actor*.

      2. Before engaging, two actors must establish a governing agreement known as the *Plan*.

2.   All actor communication via Sandpiper occurs within a *Connection*.

      1. Prior to beginning substantive data transfer, actors begin with the *introduction*.

          1. Actors make *Contact* via the network

          2. Actors *Authenticate* to verify their respective identities

      2. Once the introduction is complete, actors transfer product data during the *Exchange*.

          1. Exchanges are established and next steps are unlocked through *Negotiation*.

          2. Transferring product data and resolving pools as part of an exchange is known as *Synchronization*.

              1. Two Actors' operations and communications during synchronization are part of one or more *Transactions*.

          3. After synchronization, actors communicate about the data exchanged and sign off on the results during *Confirmation*.

> Data transfer is only one-way: in any connection only one actor will receive product data.

Still missing is a discussion of how an agreement can be changed by actors within Sandpiper, rather than through a separate admin step outside the flow. I think this could be part of the negotiation step, but I haven't made it explicit and think it may deserve holding off until the next revision.

Speaking of the negotiation step, I've created a block interaction diagram for this:
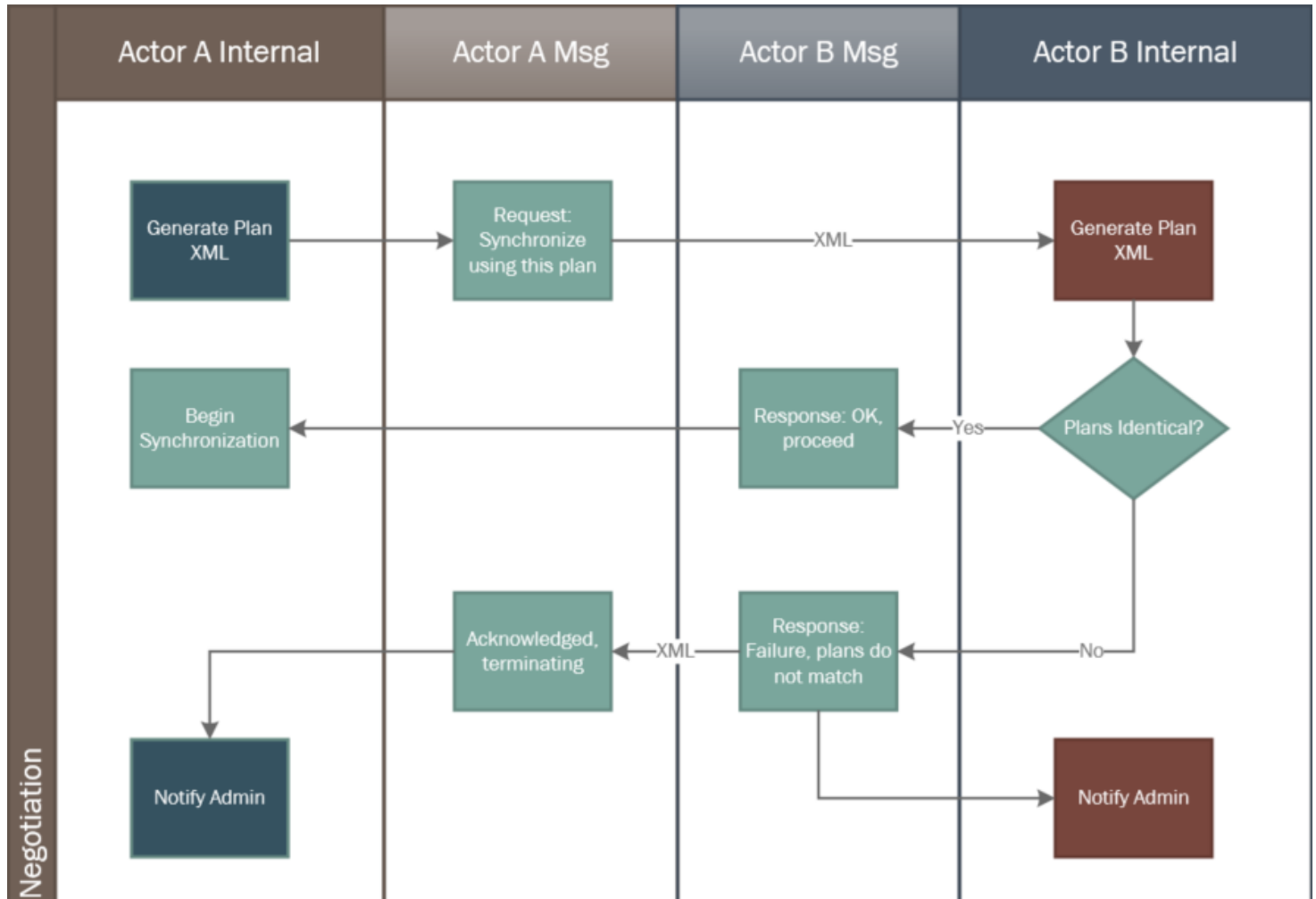
I'd like to have this kind of diagram for all of the steps.

Finally, I've strictly defined the plan, plan document, and domains:

Plan Domains

A Sandpiper plan establishes three domains and their ownership: The *Primary Domain* (owned by the primary actor), the *Secondary Domain* (owned by the secondary actor), and the *Communal Domain* (jointly shared between primary and secondary). To modify any part

of the plan, both actors must agree to the change.

Primary Plan Domain

The primary domain describes all the objects required in a partnership that reside with the primary node. This includes the node itself, its capabilities, its controller, the data pools, etc., and all the links to other systems that they have. Only the primary actor may modify this information.

Secondary Plan Domain

The secondary domain mainly describes the secondary actor, providing node information and links to other systems, capabilities, preferences, and so on. Only the secondary actor may modify this information.

Communal Plan Domain

The communal domain includes the subscriptions between the primary and secondary actors, and in the future may include other information to facilitate the relationship like cryptographic signatures. Either the primary or secondary actor may modify this information, but must propose this change through the Sandpiper API and wait for acceptance from the other party. If this acceptance is not given, the plan is placed on hold and no further synchronization can take place.

Attached is a PDF with all these changes.

🔗 **Attachments**

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Page 1 of 1 (1 items)