

# ActivityPods

## Adding intelligence to Solid PODS with ActivityPub

A proposal to integrate the ActivityPub and Solid standards



Reminder

# What is a POD?

A personal online datastore. It is a database where you can save your personal data, and choose with which applications or users you want to share them.

This is part of the standards proposed by the SoLiD (Social Linked Data) project, which aims to enable the emergence of a decentralized web, where the user regains sovereignty over his personal data.

<https://solidproject.org>



# What is ActivityPub?

It is a protocol standardized in 2018 by the W3C that aims to help federation between software.

In ActivityPub's vision, there are a multitude of actors all over the web who can emit a wide variety of activities. These actors can be followed by other actors, who thus receive their activities in their inbox.

<https://activitypub.rocks>



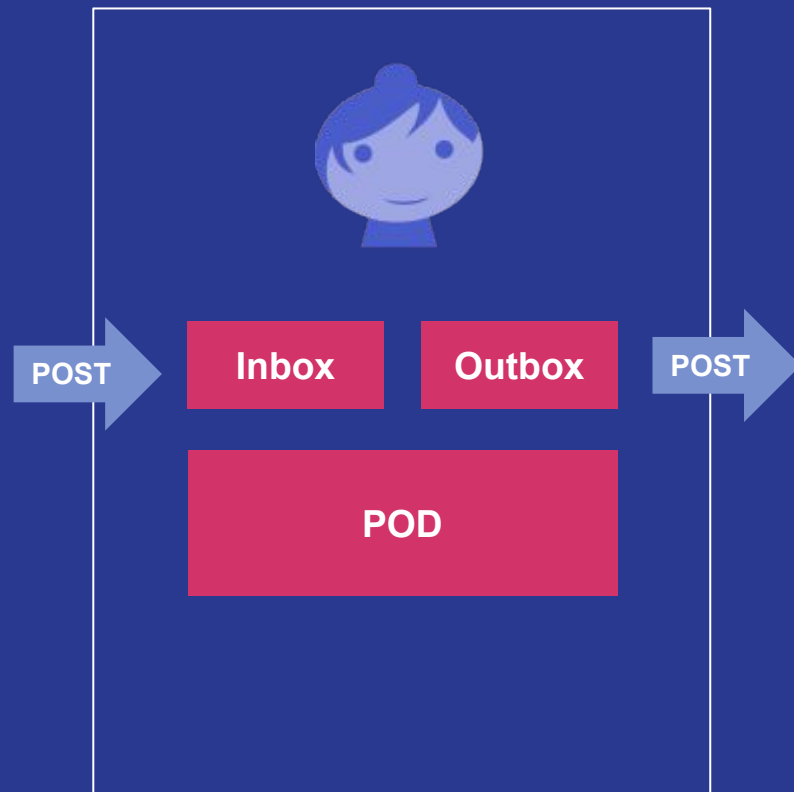
Although both have emerged within the W3C, there is currently no link between these two standards, which are intended to address the same problem (the "social web")



A proposal

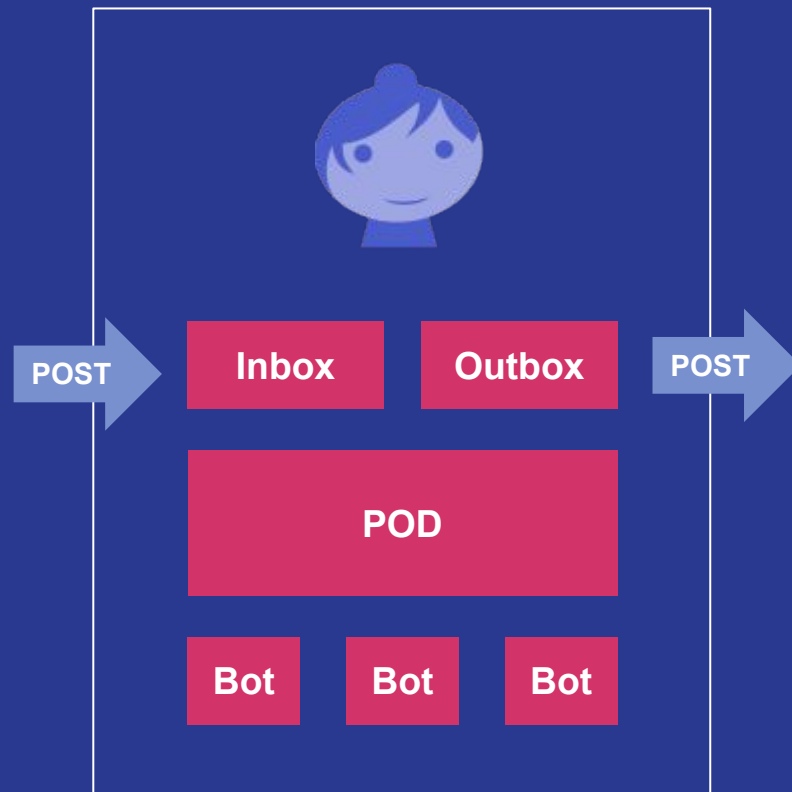
Each user who  
creates a POD also  
becomes an  
ActivityPub actor

It benefits from an inbox and an  
outbox to communicate with the  
rest of the world



Each user can set up  
ActivityPub bots to  
help automate certain  
tasks

These bots add intelligence to  
PODs, which are otherwise  
simple databases






## These bots can be activated:

- When data is changed on the POD
- When the user receives activities in his inbox
- When the user sends activities to his outbox

## These bots are able to:

- Read and modify data from the user's POD
  - Read and modify data from remote PODs, if they have the rights
  - Emit activities from the user's outbox
- 



Example

# Alice adds Bob's contact on her POD, as well as an event she is organizing



Inbox    Outbox

**POD**

Inviter Bot    Mailer Bot

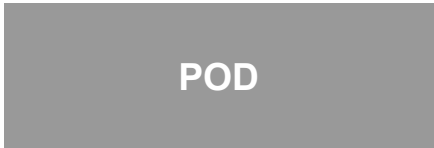


Inbox    Outbox

POD

Mailer Bot

"InviterBot" detects the addition of the event and automatically invites its friends, in this case Bob



```
{  
  "type": "Invite",  
  "actor": "Alice",  
  "object": "Event URI",  
  "target": "Bob"  
}
```

"InviterBot" also grants Bob  
a read right (acl:Read) on the event



Inbox    Outbox

POD

Inviter Bot    Mailer Bot

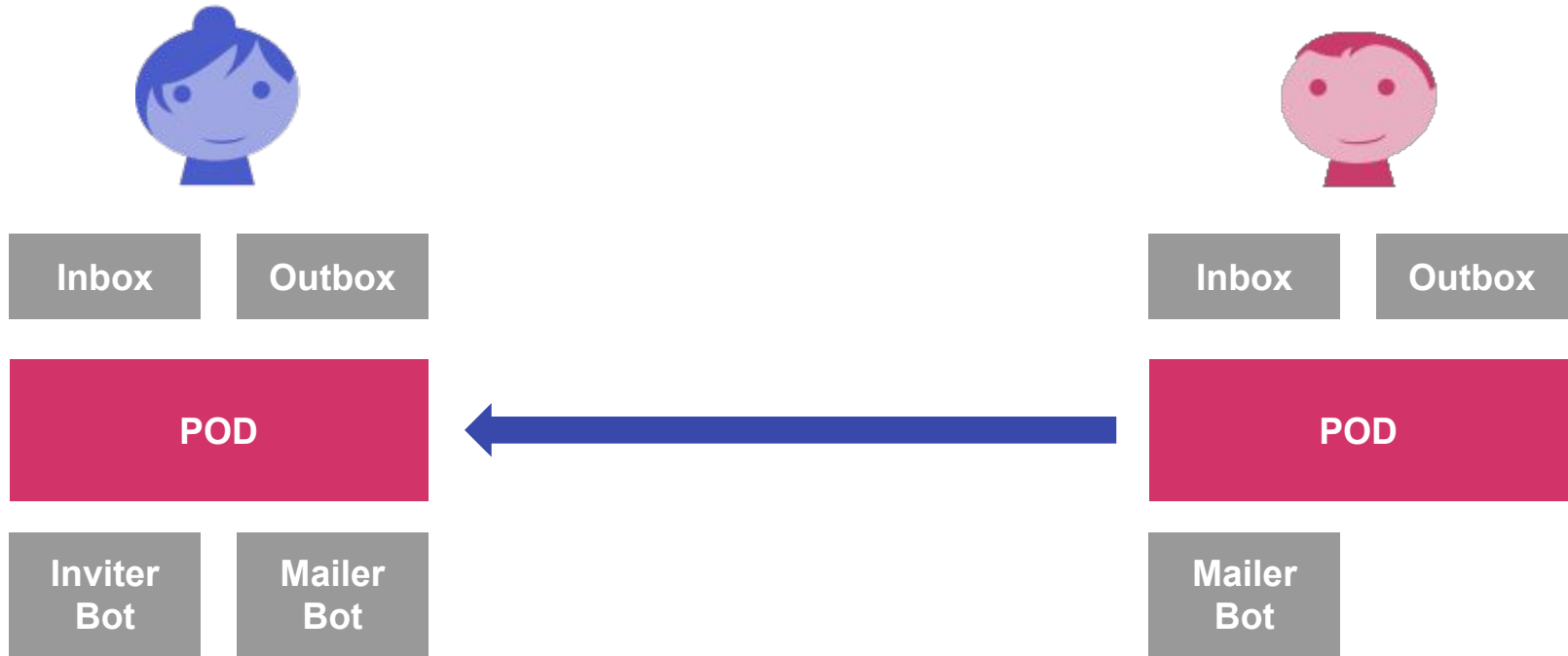


Inbox    Outbox

POD

Mailer Bot

Bob read the event info (via HTTP signature)  
and cache it on his local POD



"MailerBot" sends him an email notification.



Inbox    Outbox

POD

Inviter Bot    Mailer Bot



Inbox    Outbox

POD

Mailer Bot

# Bob accepts the invitation by sending in Alice's inbox the appropriate message





"InviterBot" adds Bob as a participant, after checking that the event is not full.



**Inbox**   **Outbox**

**Inbox**   **Outbox**

**POD**

**POD**

**Inviter Bot**   **Mailer Bot**

**Mailer Bot**

"MailerBot" sends an email to Alice to notify her of a new participant in her event.



Inbox    Outbox

POD

Inviter Bot    **Mailer Bot**



Inbox    Outbox

POD

Mailer Bot

# Alice notifies her guests that the event has been updated with new participants

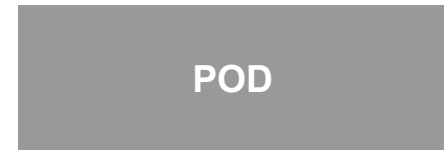
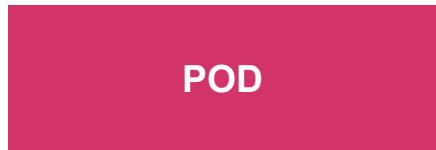


# Bob notices a typo in the event description and suggests a correction to Alice



```
{  
  "type": "Offer",  
  "object": {  
    "type": "Update",  
    "object": "Event URI"  
  }  
}
```

As Bob is a friend of Alice, his proposal is automatically accepted and the correction is integrated



This is a simple example of interactions that could be achieved by combining ActivityPub with a POD Solid.

But of course the bots could do much more and become real applications...

# Implementation

# SemApps offers everything to realize this vision

- SemApps is a toolbox to realize web semantic applications. As such, it already implements :
  - the LDP protocol (the basis of the Solid PODs)
  - the ActivityPub protocol
  - HTTP Signature protocol
- Since it is based on the [MolecularJS framework](#), it is easy to add services (bots) that will listen for data additions via LDP, or for the addition of activities in the inbox or outbox.

<https://semapps.org>





# ActivityPods are already a reality

- We took two months to develop what was needed to build ActivityPods and install bots.
- It can already handle contacts exchange, messages as well as events management (invitation and registration).
- We will release a working frontend soon.

<https://github.com/assemblee-virtuelle/activitypods>



# Questions, comments ?

Feel free to write to [sebastien.rosset@assemblee-virtuelle.org](mailto:sebastien.rosset@assemblee-virtuelle.org)