

# “Pushpull” delivery of SETs

Atul Tulshibagwale

CTO, [SGNL](#) and Co-chair [OpenID SSWG](#)  
[LinkedIn](#), [GitHub](#): @tulshi, [X](#): @zirotrust

# Why this, why now?

- SecEvents defined “[Push Delivery](#)” and “[Poll Delivery](#)” to deliver [SETs](#)
  - WG has since concluded
- Limitations:
  - Push can only deliver 1 SET in one connection
  - Push recipient cannot provide delayed acknowledgement of received SETs
  - Multiple connections required in bi-directional communication
- OpenID Shared Signals Framework (SSF) seeing greater occurrence of workloads that are both transmitters and receivers
  - Need efficient bi-directional transport

# Pushpull Delivery: Communication Object

- Common JSON object that contains (all optional):
  - An array of SETs to transfer to the recipient
  - An array of error objects
  - An array of SETs to be acknowledged
- Similar to a HTTP Response in “Delivery Poll” (RFC8936)

```
{
  "sets": {
    "4d3559ec67504aaba65d40b0363faad8":
"eyJhbGciOiJub251In0.eyJ...d29yZCYWlscyJdfX19.",
    "3d0c3cf797584bd193bd0fb1bd4e7d30":
"eyJhbGciOiJub251In0.eyJq...QiOnsicmVzZXRBdl."
  },
  "ack": [
    "f52901c4-3996-11ef-9454-0242ac120002",
    "0636e274-3997-11ef-9454-0242ac120002",
    "d563c724-79a0-4ff0-ba41-657fa5e2cb11"
  ],
  "setErrs": {
    "5c436b19-0958-4367-b408-2dd542606d3b" : {
      "err": "invalid subject",
      "description": "subject format not
supported"
    }
  }
}
```

# Pushpull Delivery: Transport options

- Always a Communication Object
- HTTP Request Response binding
  - Requests can have an additional “maxResponseEvents” field
- WebSocket binding
  - WebSocket Subprotocol: `pushpull`
  - Communication Object is the Payload data
- Any initiator can request upgrade to WebSocket, and they must use WebSocket if handshake succeeds