Trustful hyper-linked entities in dynamic networks

reTHINK / 5G

Service Delivery via dynamic web-based hyper-linked entities

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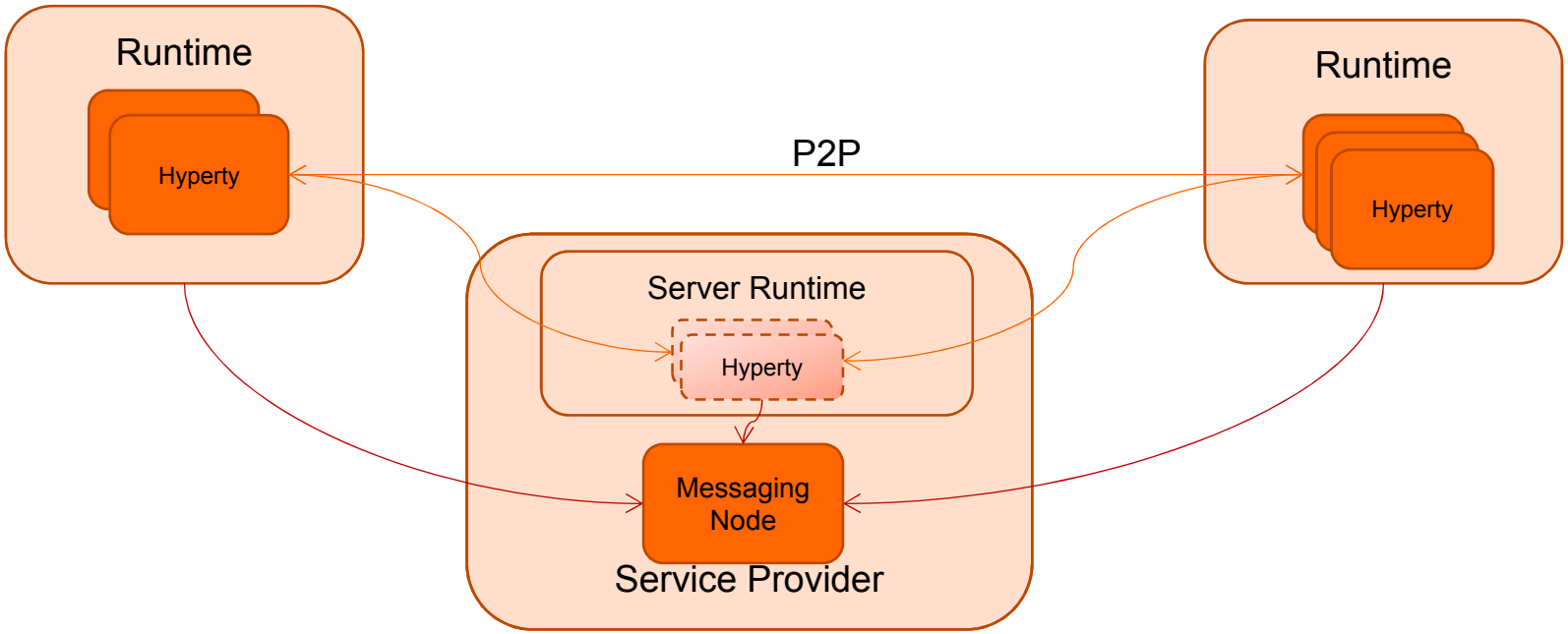
Main goals of reTHINK

- Design and prototype a new Web-centric peer to peer Service Architecture
- Enable dynamic trusted relationships among distributed applications called Hyperlinked Entities (“Hyperties”)
- Support use-cases beyond commodity voice such as contextual and social communications, D2D, M2M/IoT applied to smart cities use cases
- Main drivers of reTHINK:
  - Agile Service Architecture, with a light weight standardization needs (and very few protocols)
  - Innovative Identity model, flexible and reliable
  - Bringing QoS features on demand on the new networks

Principles

- The reTHINK Service Delivery framework follows
  - Microservices Architecture patterns
  - Edge Computing paradigms
- reTHINK envisages
  - A global network of interconnected microservices called Hyperties
  - Executed in end-user devices or edge-network servers, on behalf of users

A distributed Framework

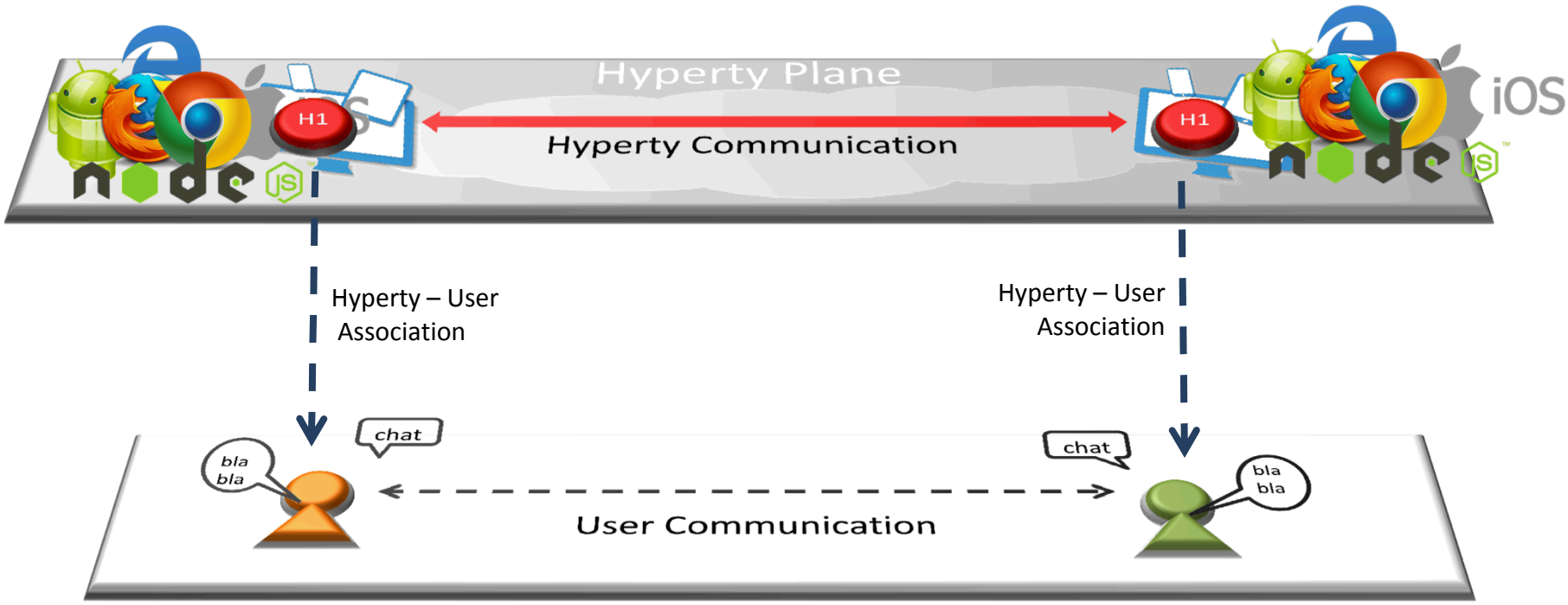


Main reThink concepts

- **Hyperty**: dynamic web-based service downloaded on client side or edge server, and linked to an identity
- **Protocol-on-the-fly** (ProtoFly) concept to avoid using standard network protocols (No need for normalization and standards)
- Independent **identity management**

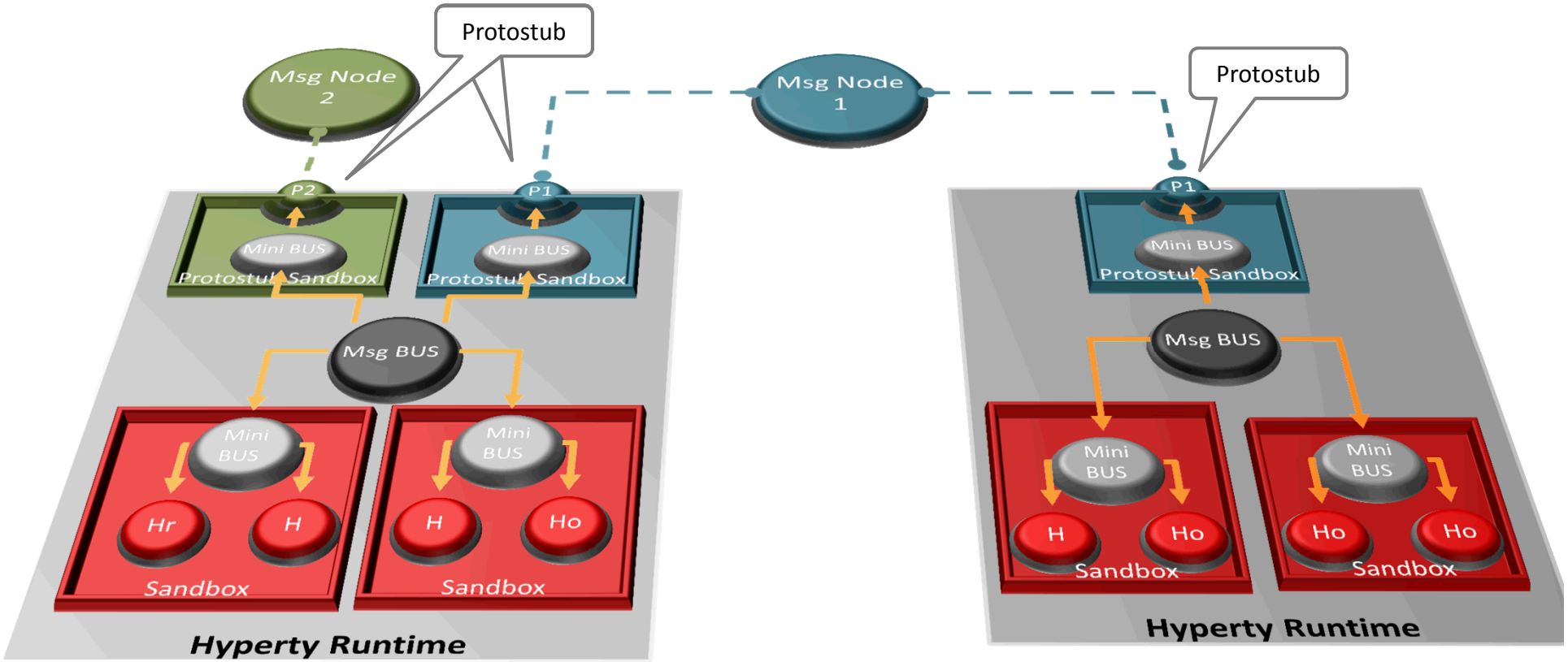
Hyperty

- Implements a Service Logic
- An instance is associated to a “User” through an identity
- The Identity is decoupled from the Service Provider
- Hyperties are implemented in Javascript ECMA5/6 (currently)

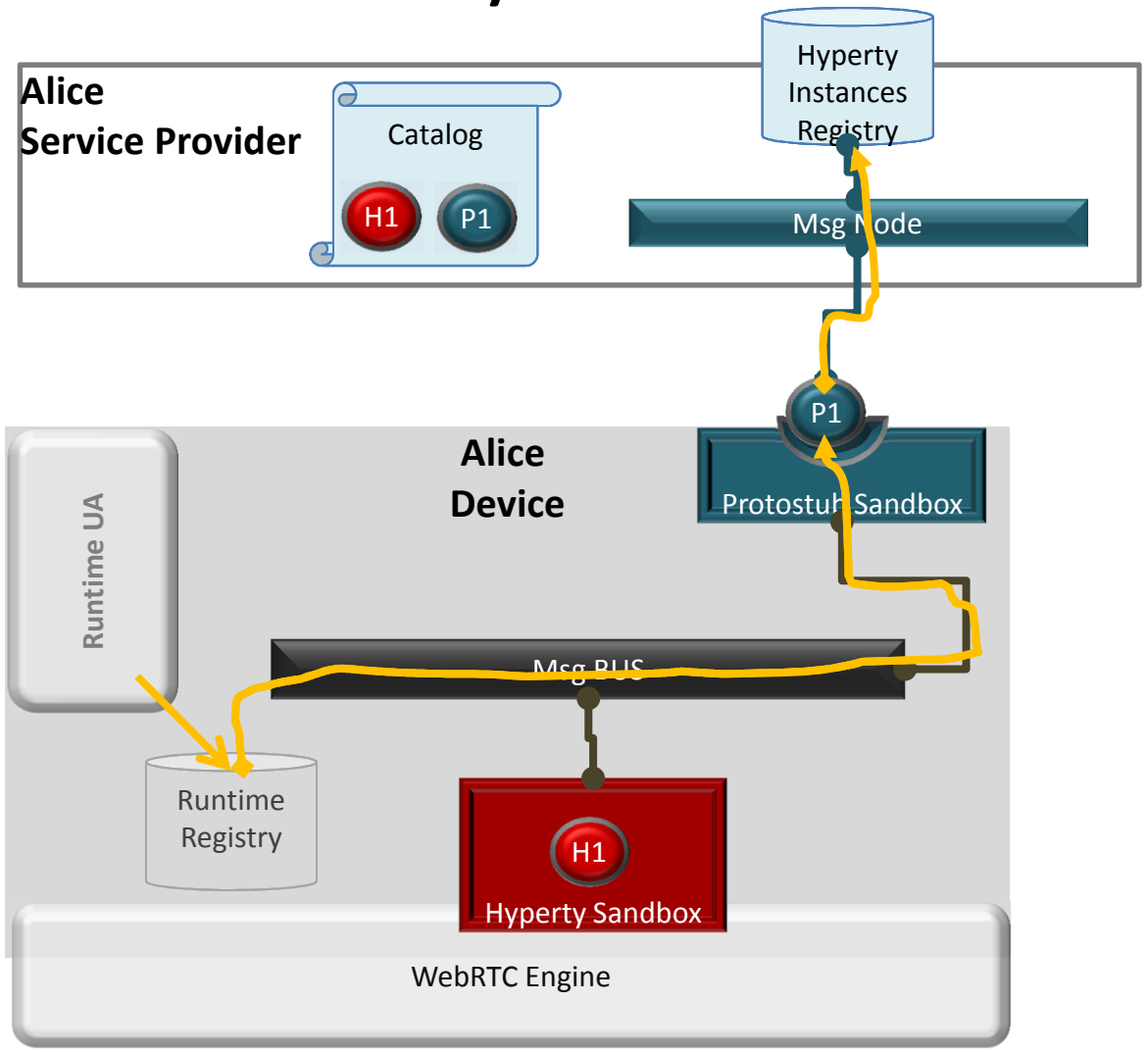


Protocol on-the-fly – Protofly

- Protocol on-the-fly leverages the code on-demand support by Web runtimes (e.g. Javascript)
- The most appropriate protocol stack is dynamically selected loaded and instantiate during run-time



Protofly Procedure



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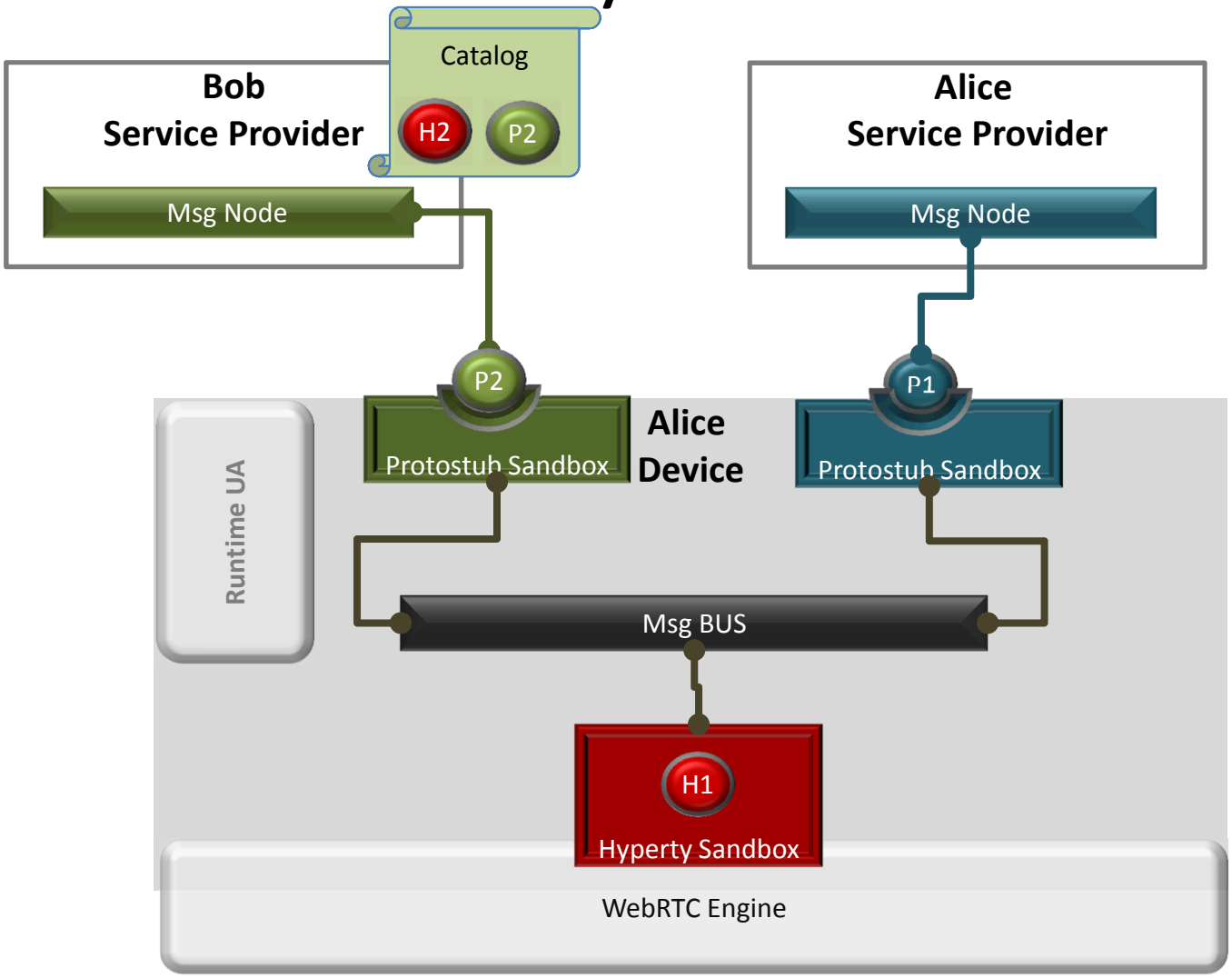

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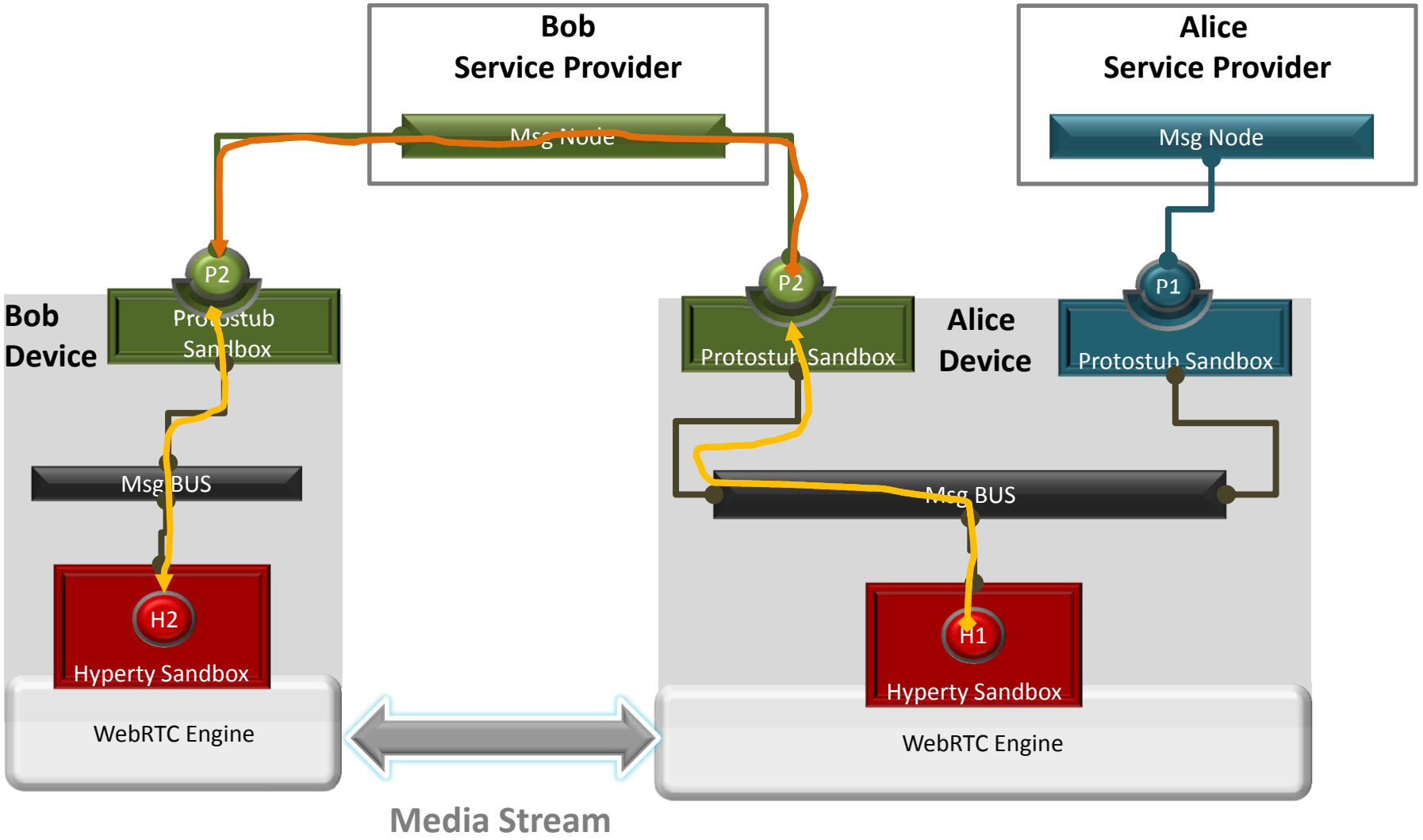
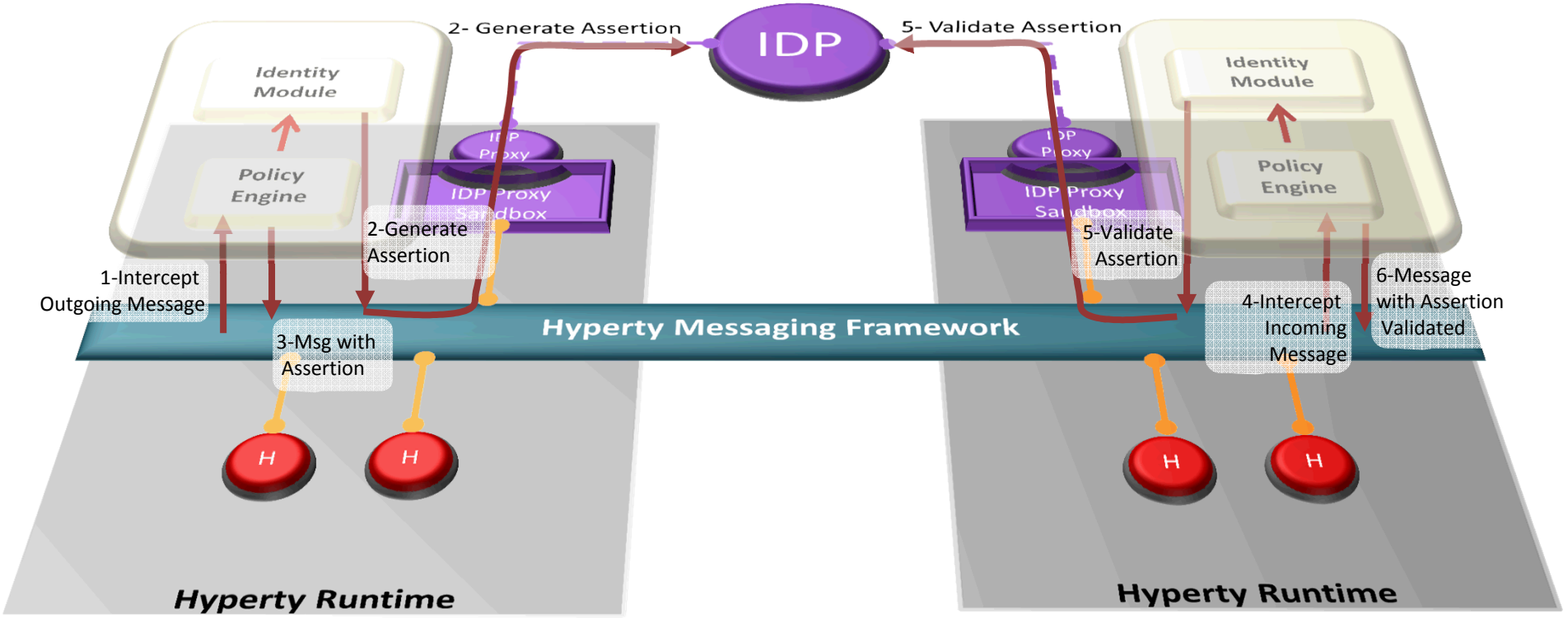


Trust Model

- Identity tokens are generated, inserted in Messages sent by Hyperties, and validated by dedicated modules within recipient Hyperty Runtimes before delivered to the target Identity.
- Identity management procedures are performed according to applicable policies managed by the end-user.



Thank you

https://rethink-project.eu/publications/deliverables/

https://github.com/reTHINK-project

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