OMOS: A Framework for Secure Communication in Mashup Applications

Saman Zarandioon Danfeng (Daphne) Yao Vinod Ganapathy
Department of Computer Science
Rutgers University
Piscataway, NJ 08854
{samanz,danfeng,vinodg}@cs.rutgers.edu

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Mashups

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- What is a **Mashup** application?

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- What is a **Mashup** application?
  - Seamlessly combine contents from multiple heterogeneous data sources.
  - Overal goal: more integrated and convenient end-user experience.
  - Becoming very popular - Web 2.0

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- What is a **Mashup** application?
- My favorite mashup website *Zillow*!

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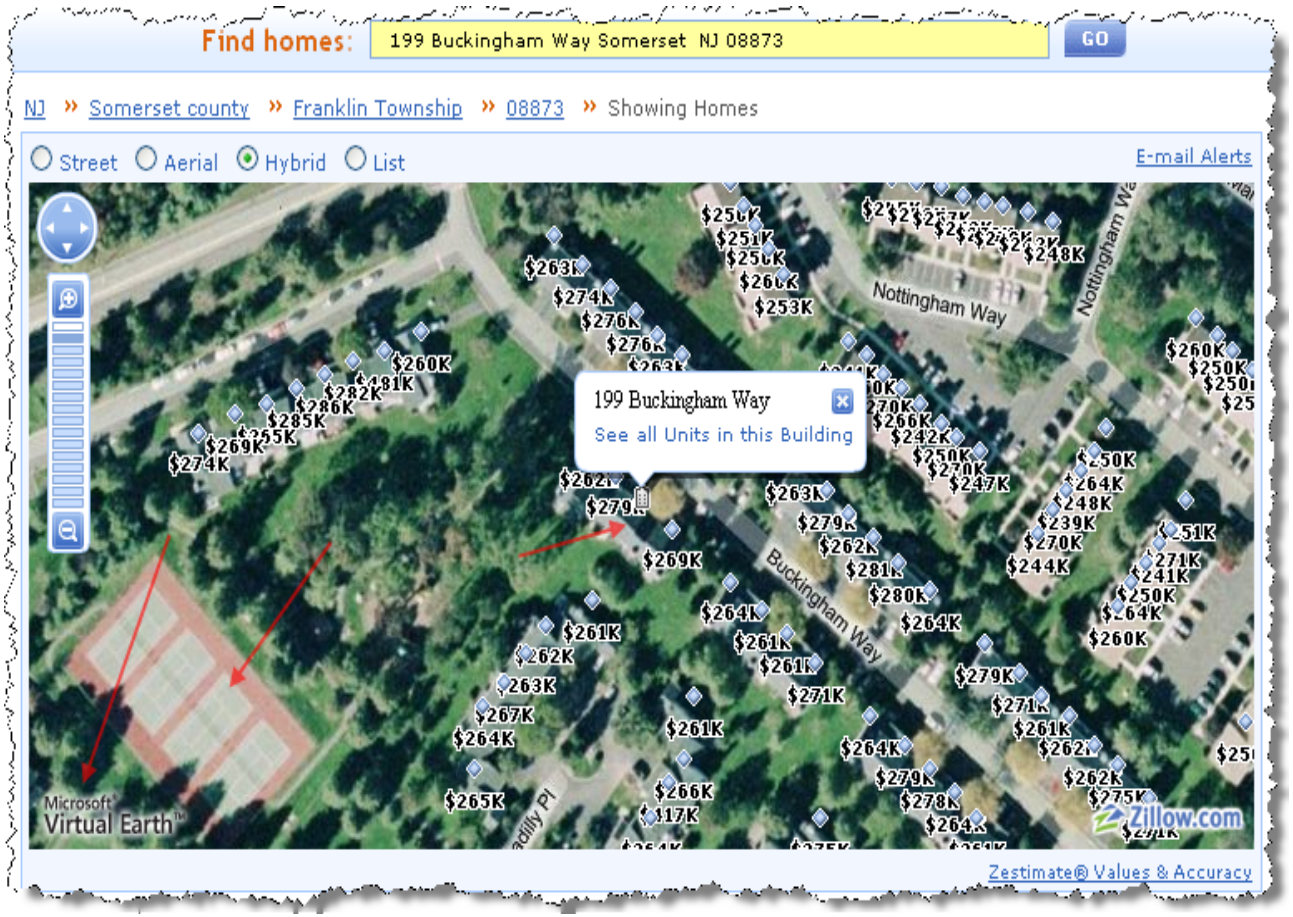

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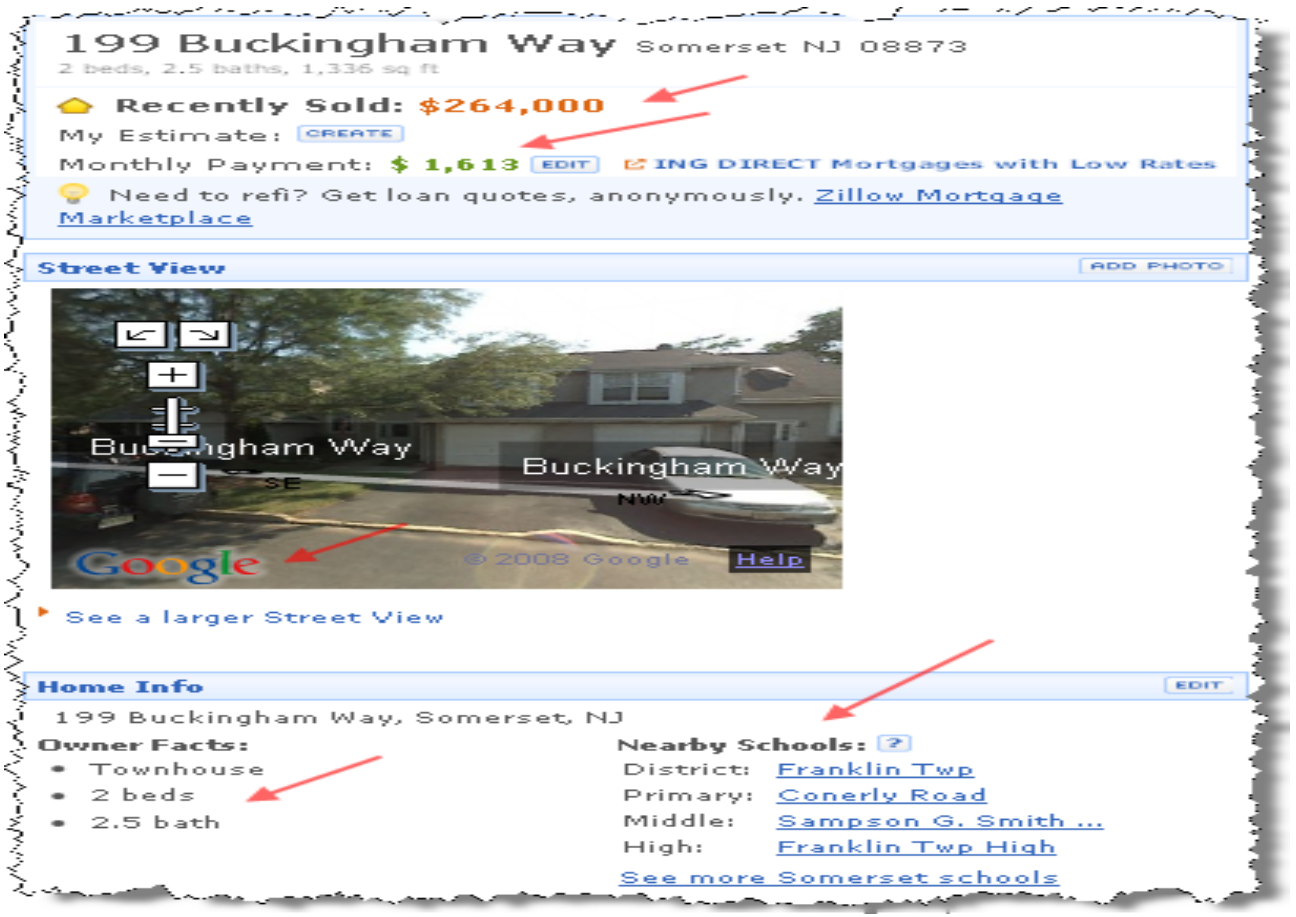

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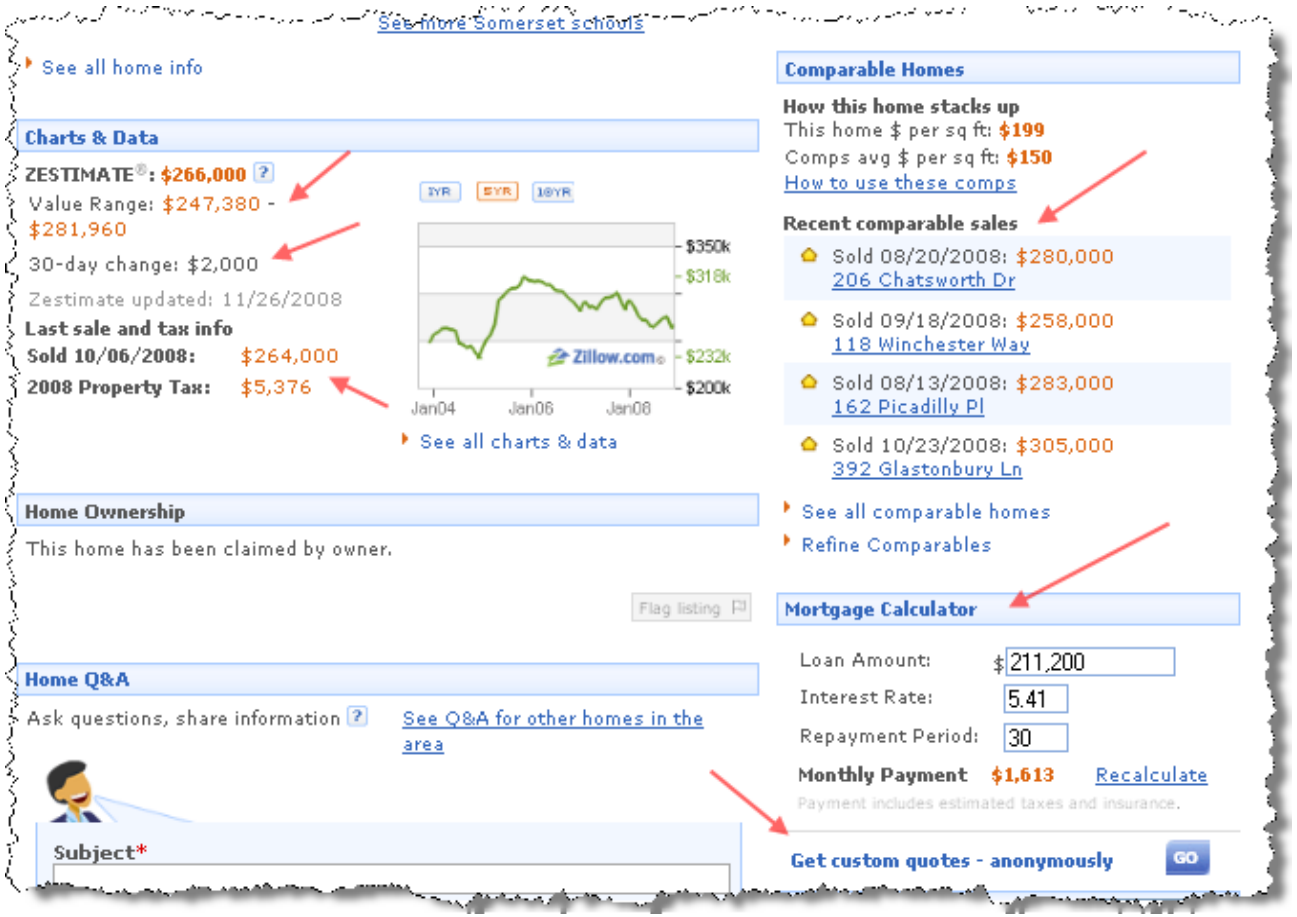

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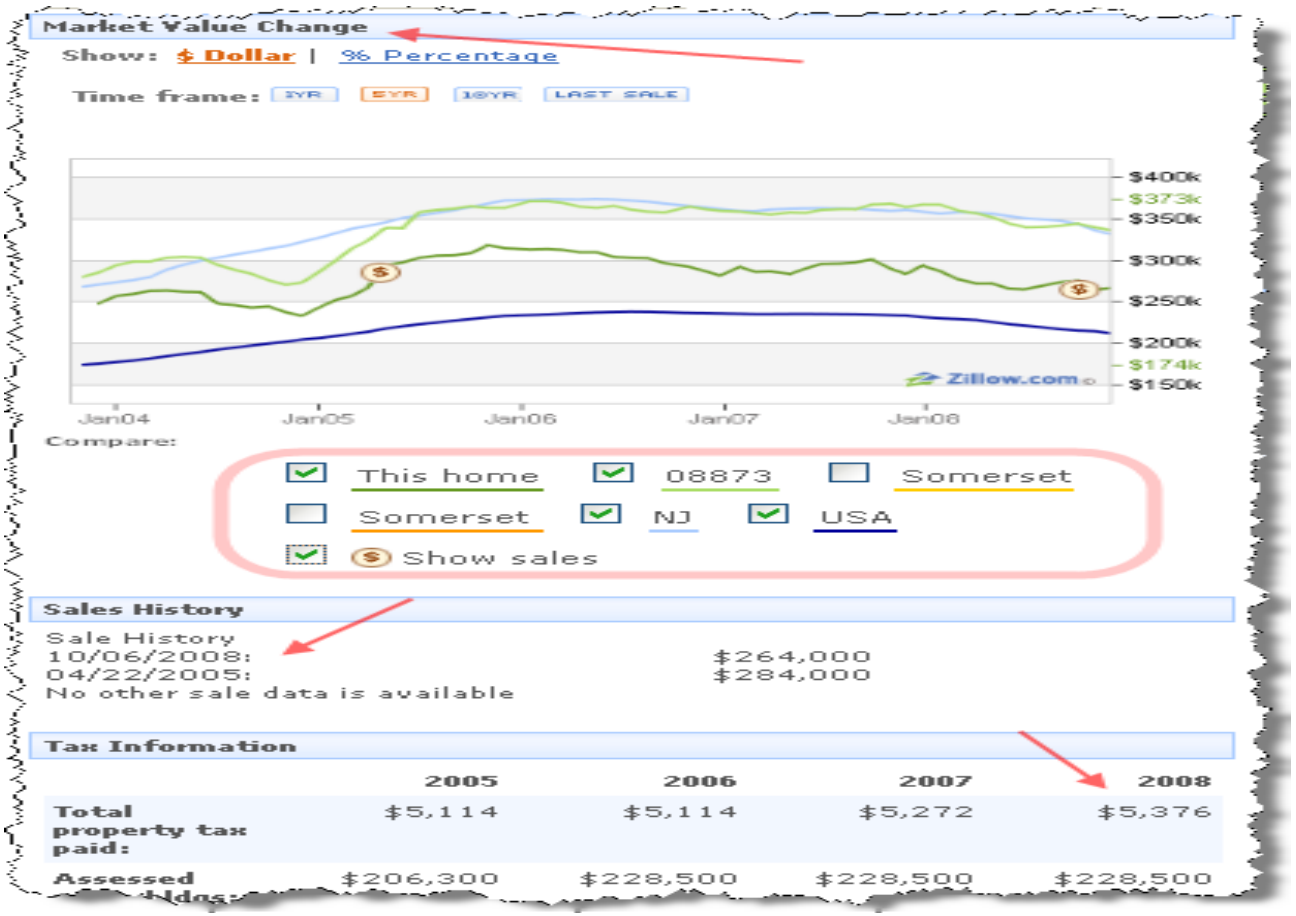

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- What is a **Mashup** application?
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- **Web desktop** (webtop) (e.g. eyeOS, DesktopTwo, G.ho.st, Netvibes, and Online OS).

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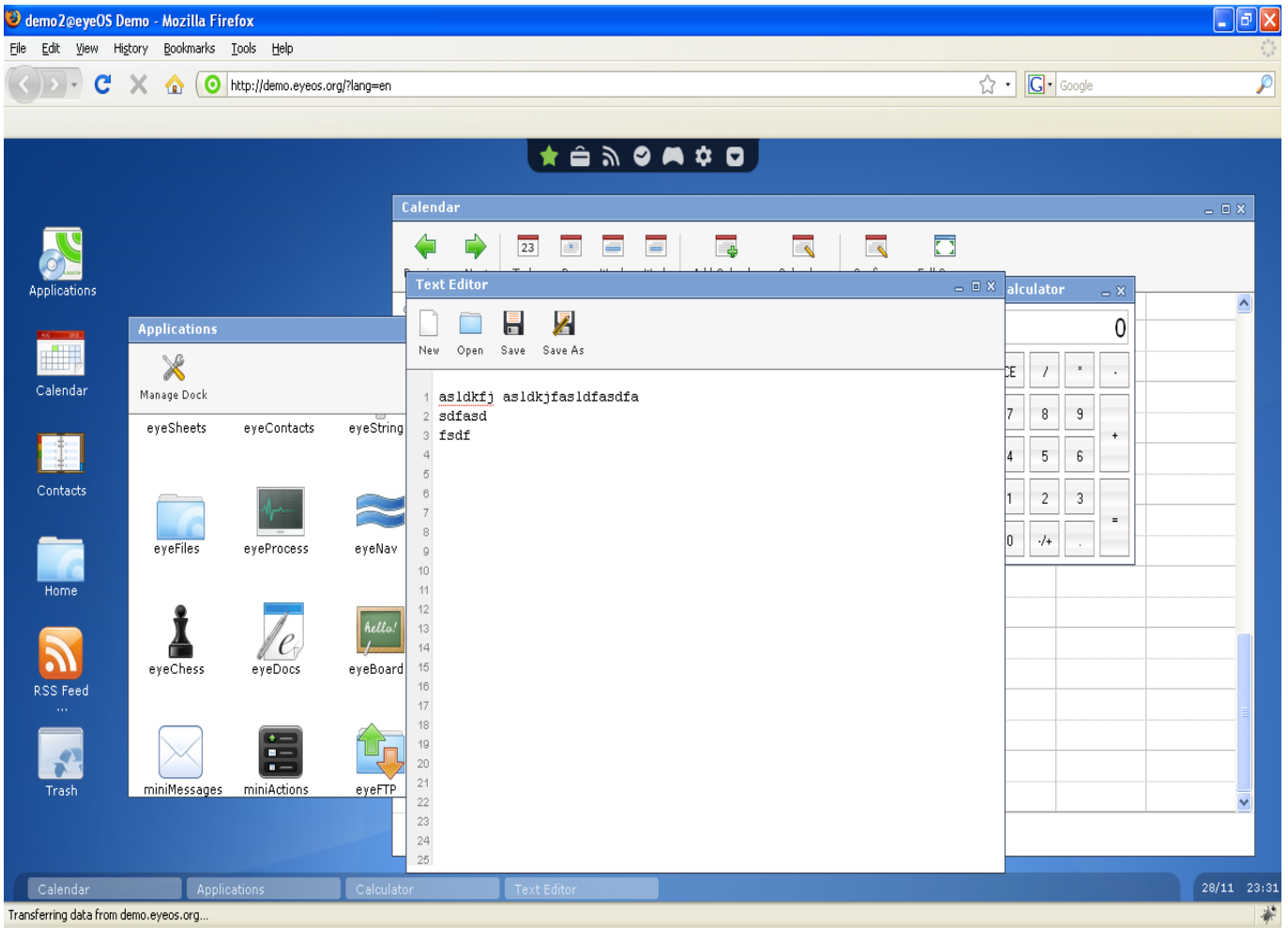
Open Source Platform .org



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Ways that service providers can expose their services:

- **Server-side services**

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Ways that service providers can expose their services:

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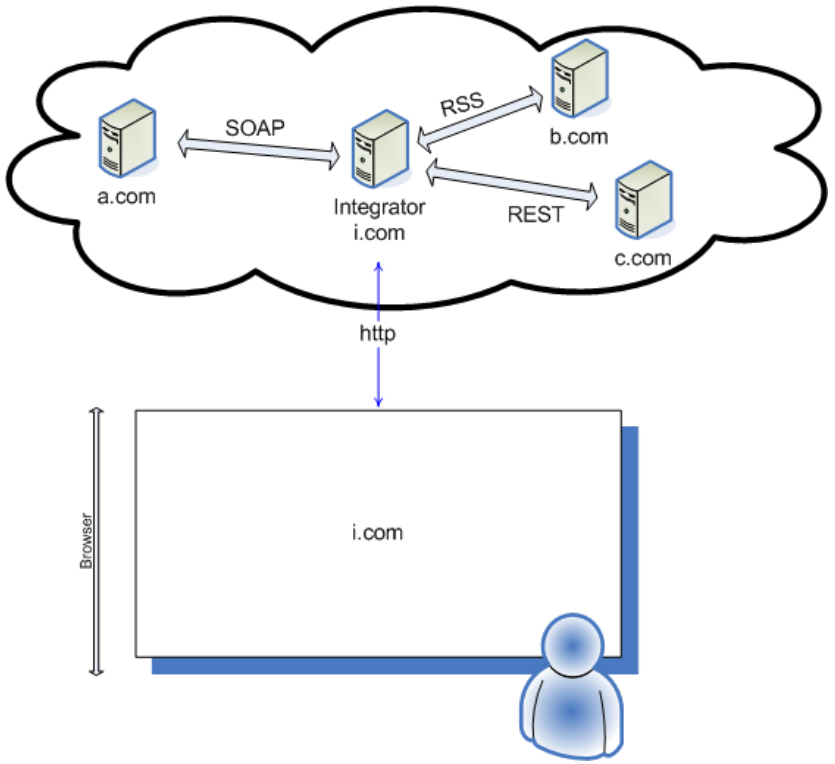

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- **Client-side services**

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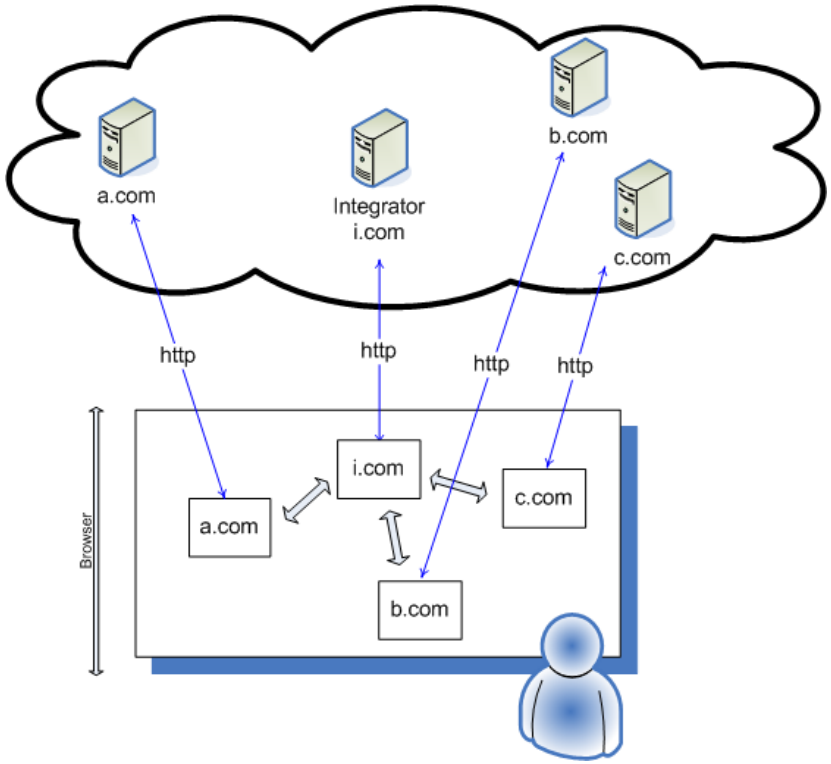

User is involved; AJAX-oriented; More responsive/efficient

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- Service providers use **ad-hoc non-secure** methods.

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- **OpenMashupOS (OMOS)** is a mashup framework that is designed to support secure client-side services.

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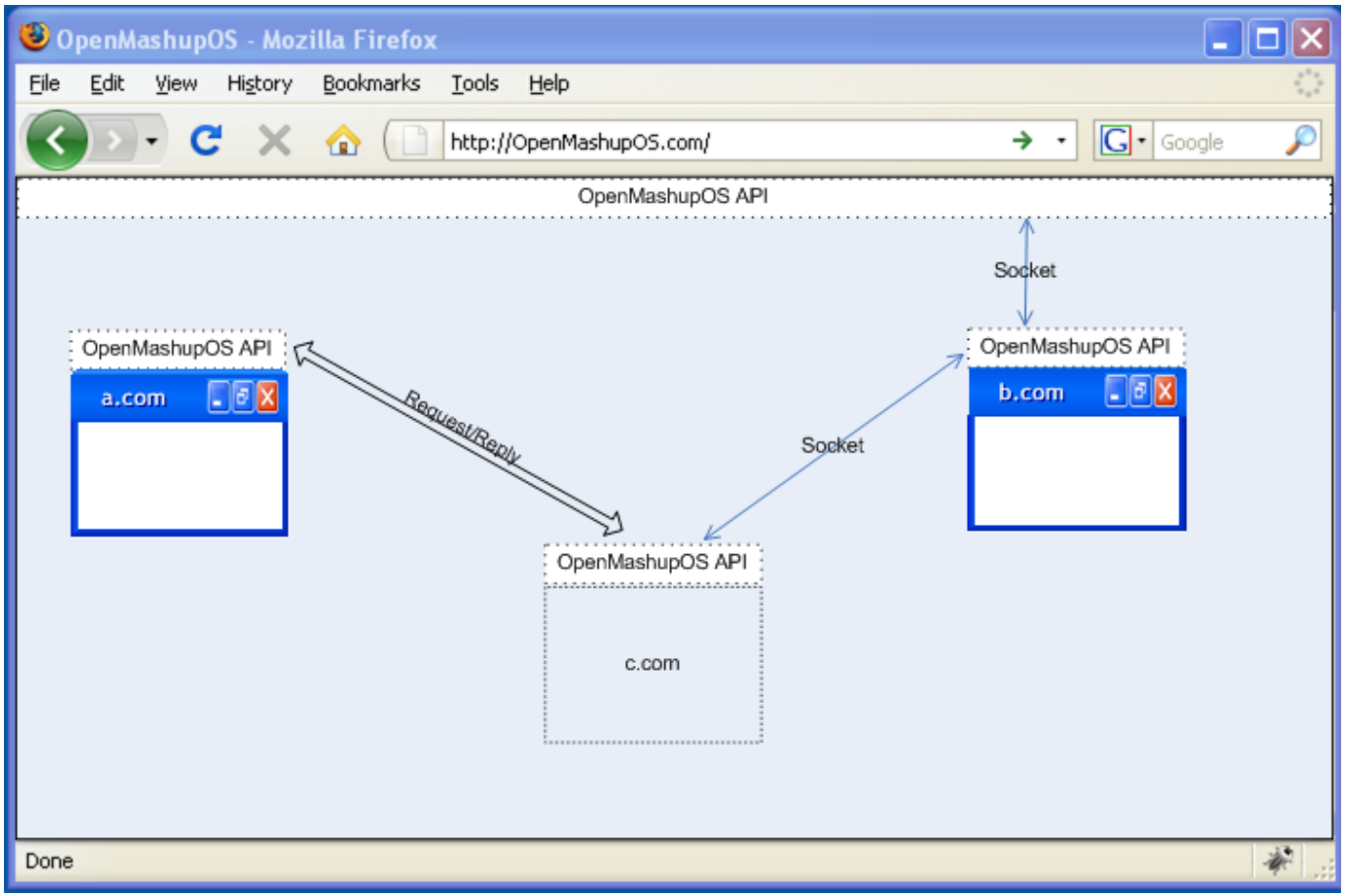

Using OMOS API, mashlets can communicate with their siblings and parents.

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Security of OMOS communication protocol relies on *Same Origin Policy (SOP)*:

- Protects confidentiality of domains against each other. (DOM elements, events, cookies, . . .)
- URL property of an iframe is write-only.
- Partial change of URL is not allowed.

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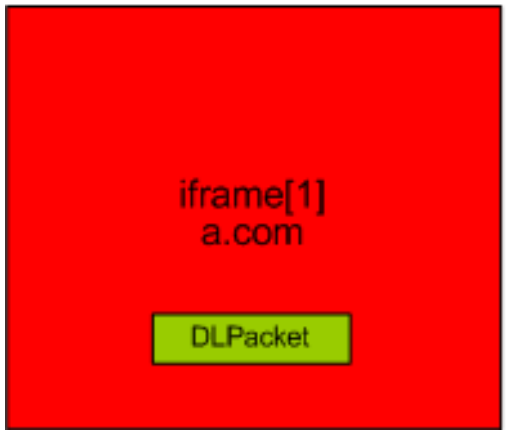
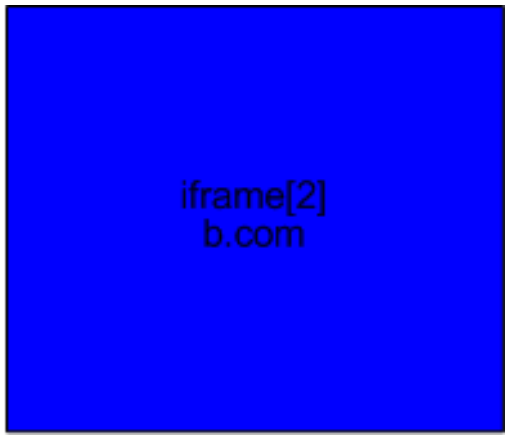
Destination Frame Address	Source Frame Address	End point ID	Secret Key	Sequence Number	List of data fragments





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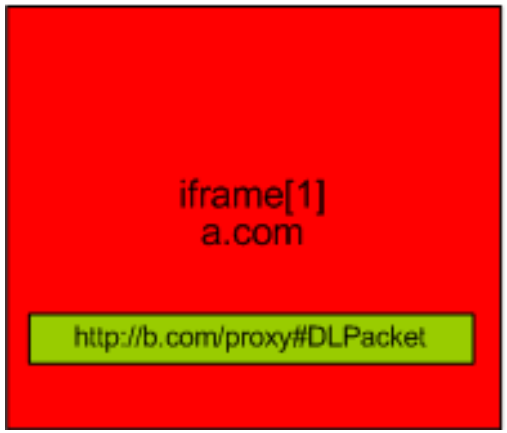

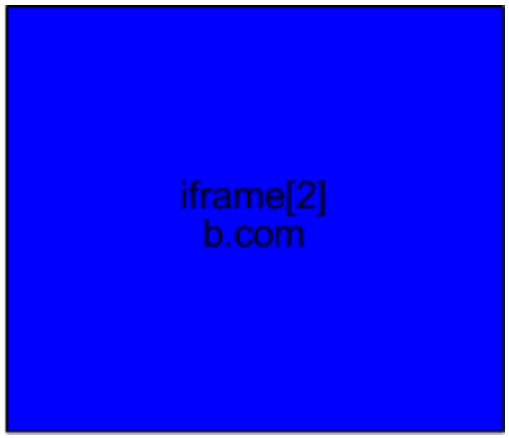

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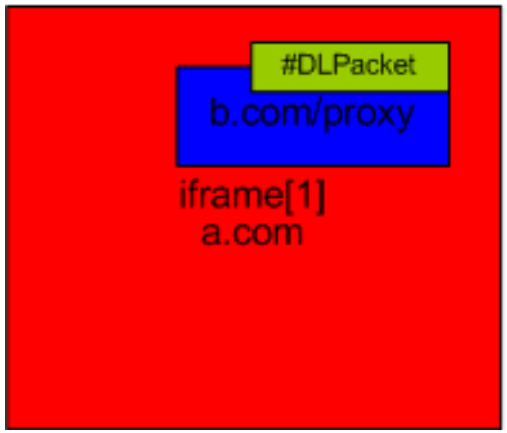

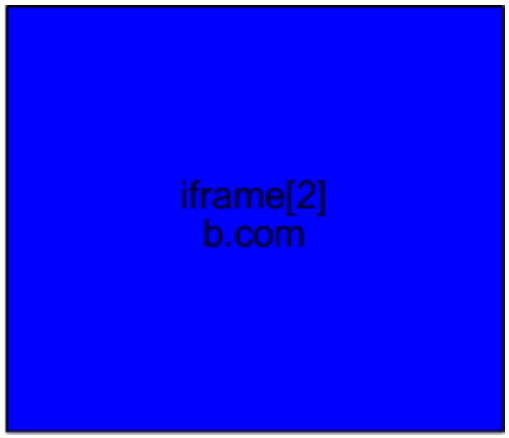

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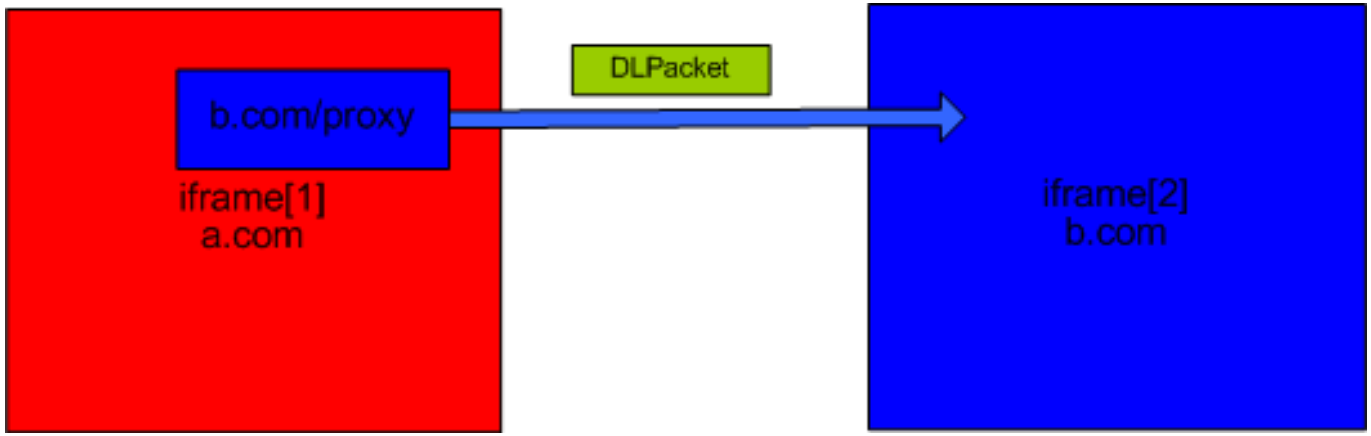

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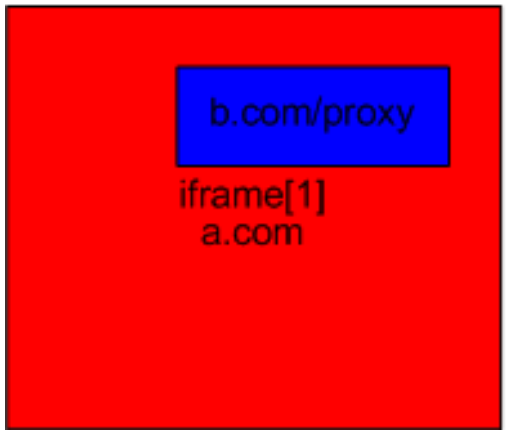

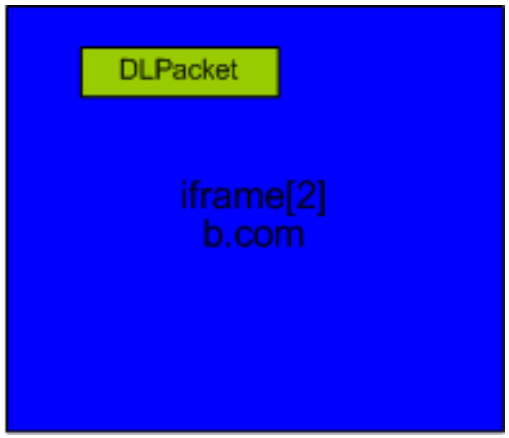

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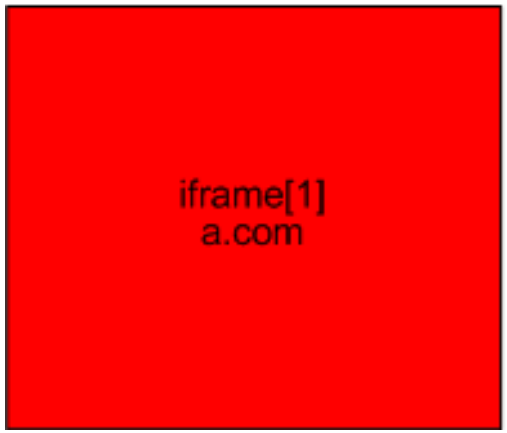

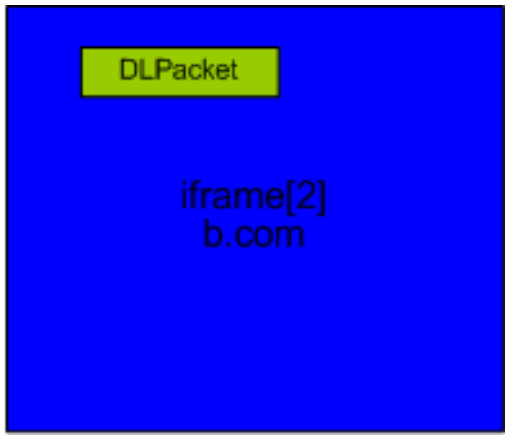

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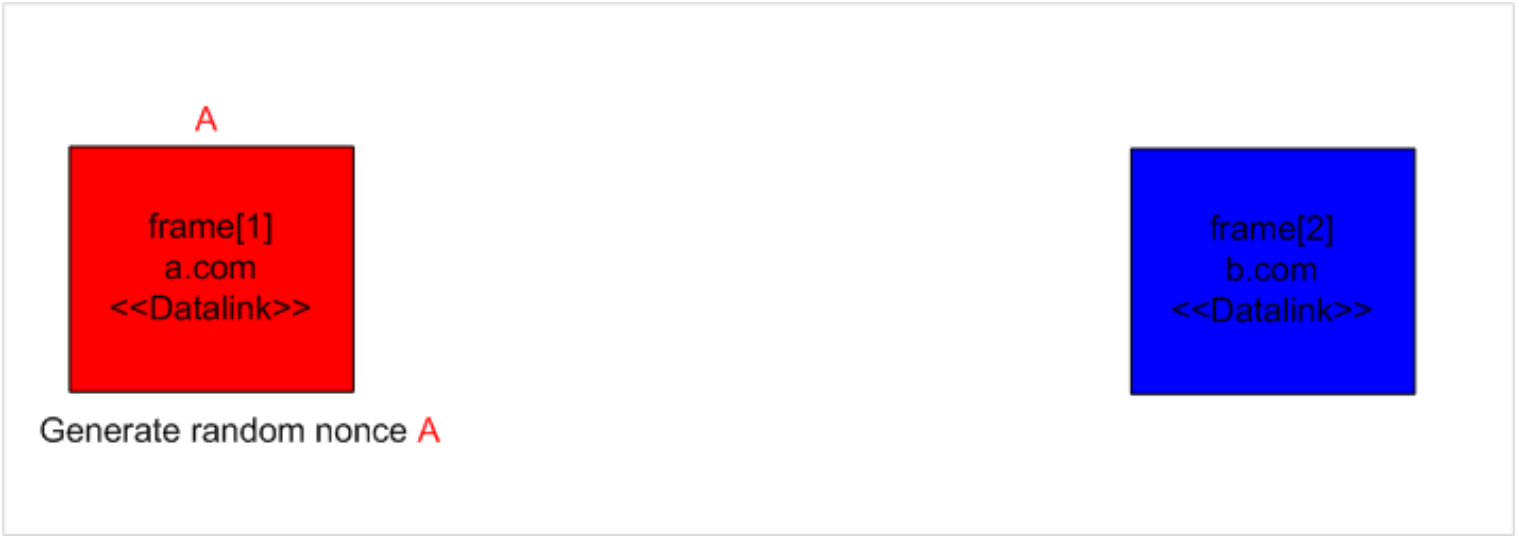
Key exchange protocol:



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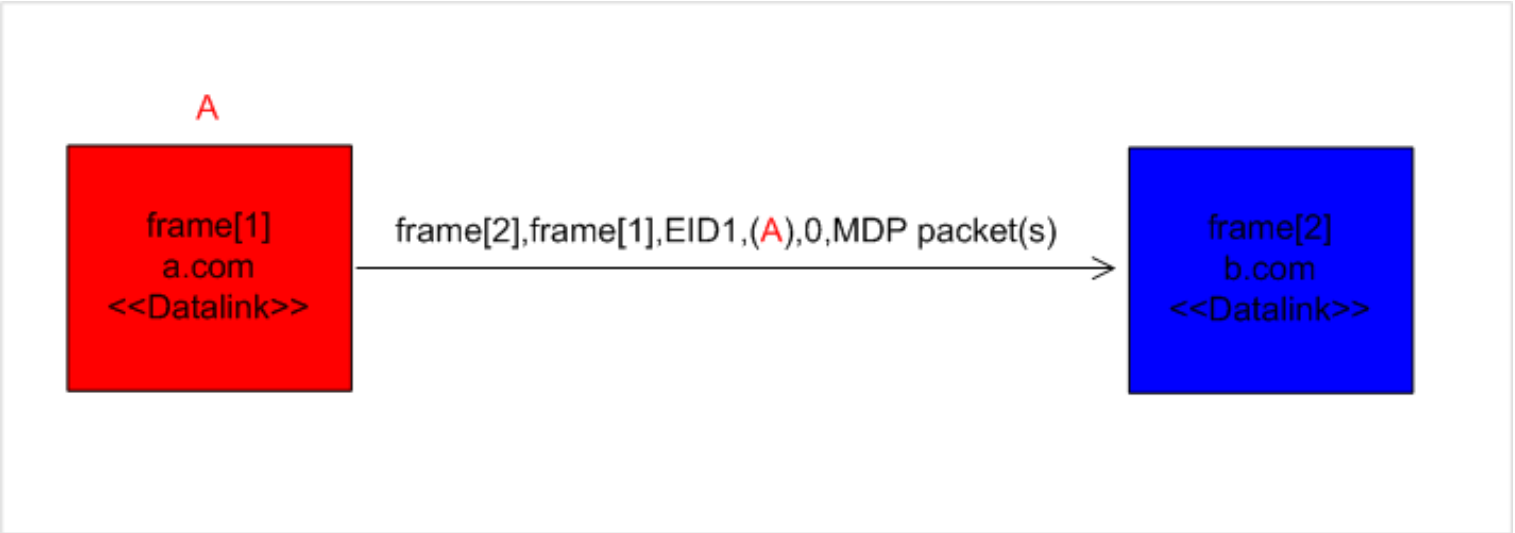

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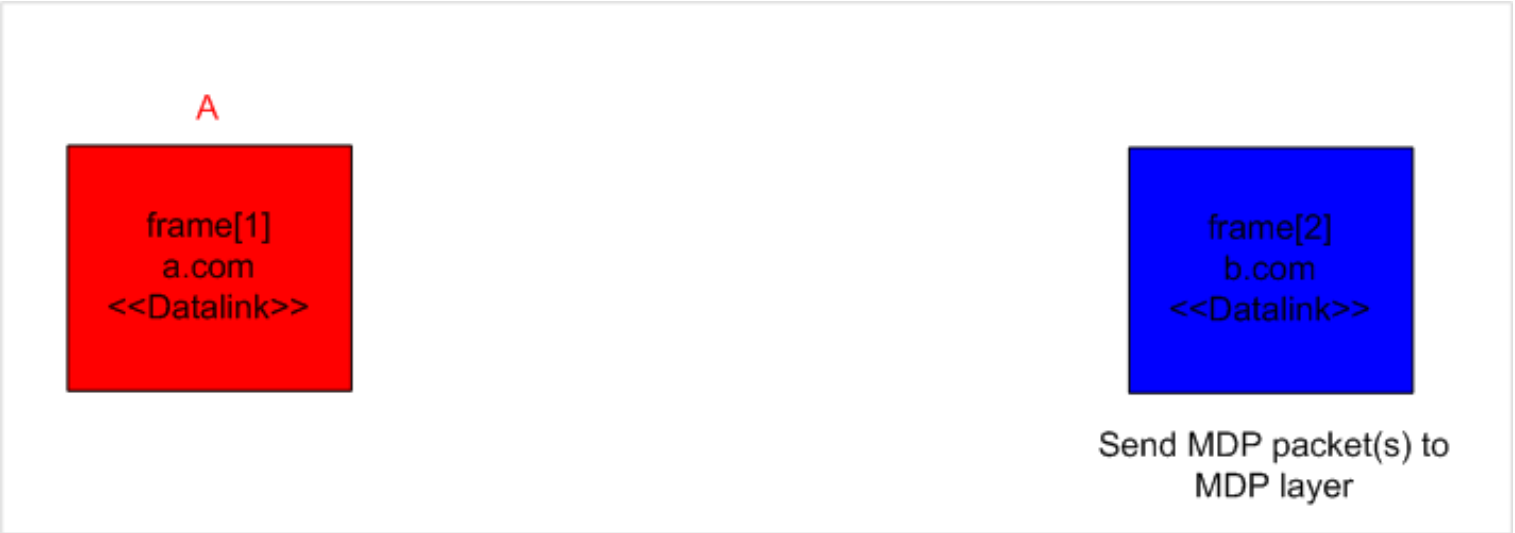

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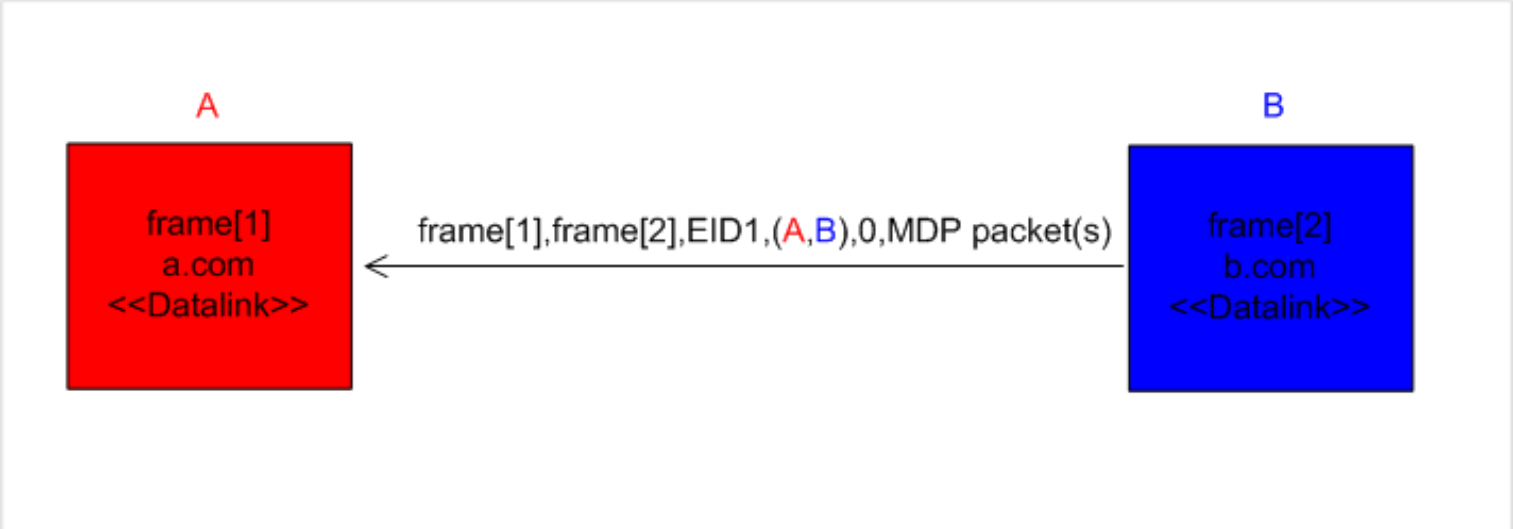

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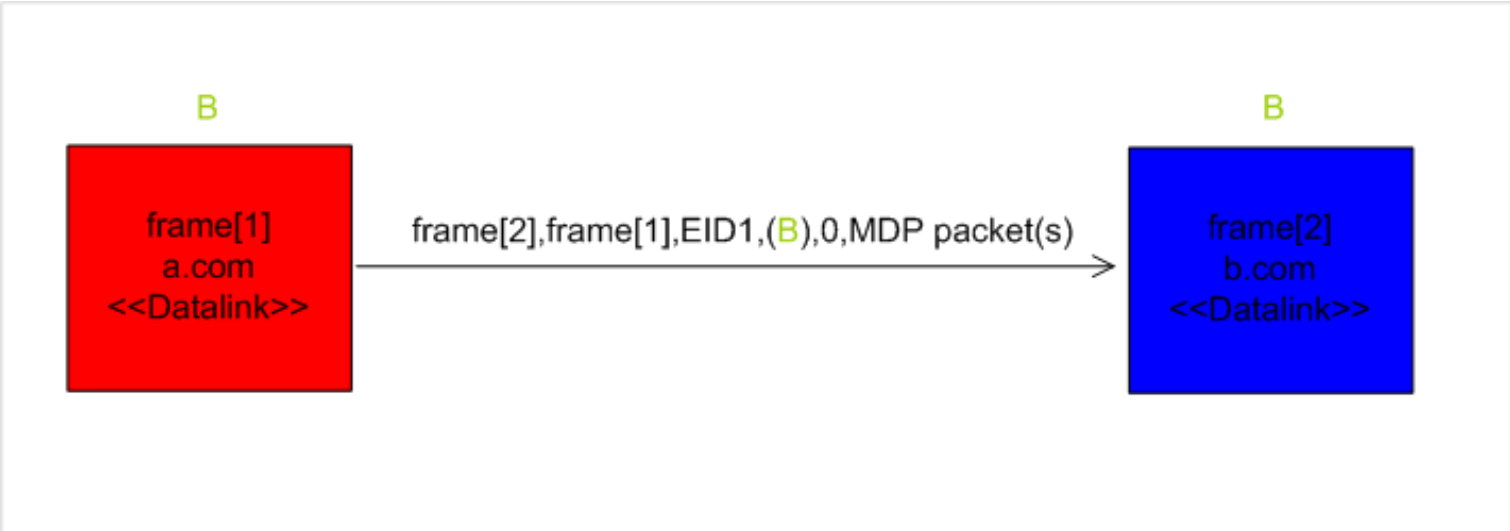

Communication Stack

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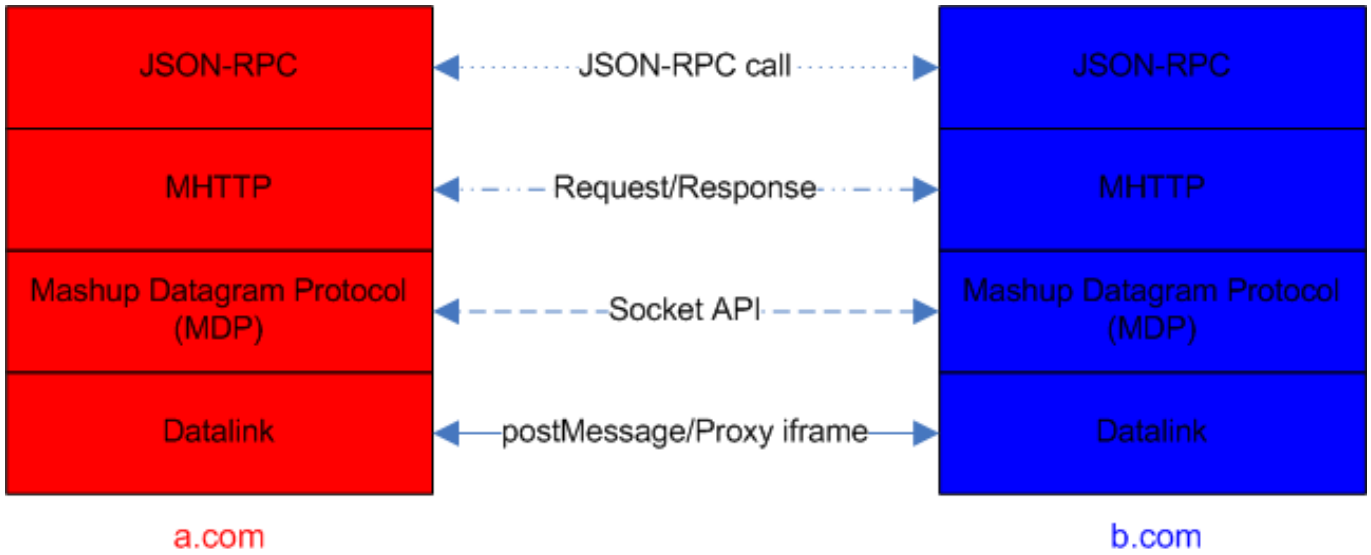

Each layer hides complex implementation details of communication in lower layers.

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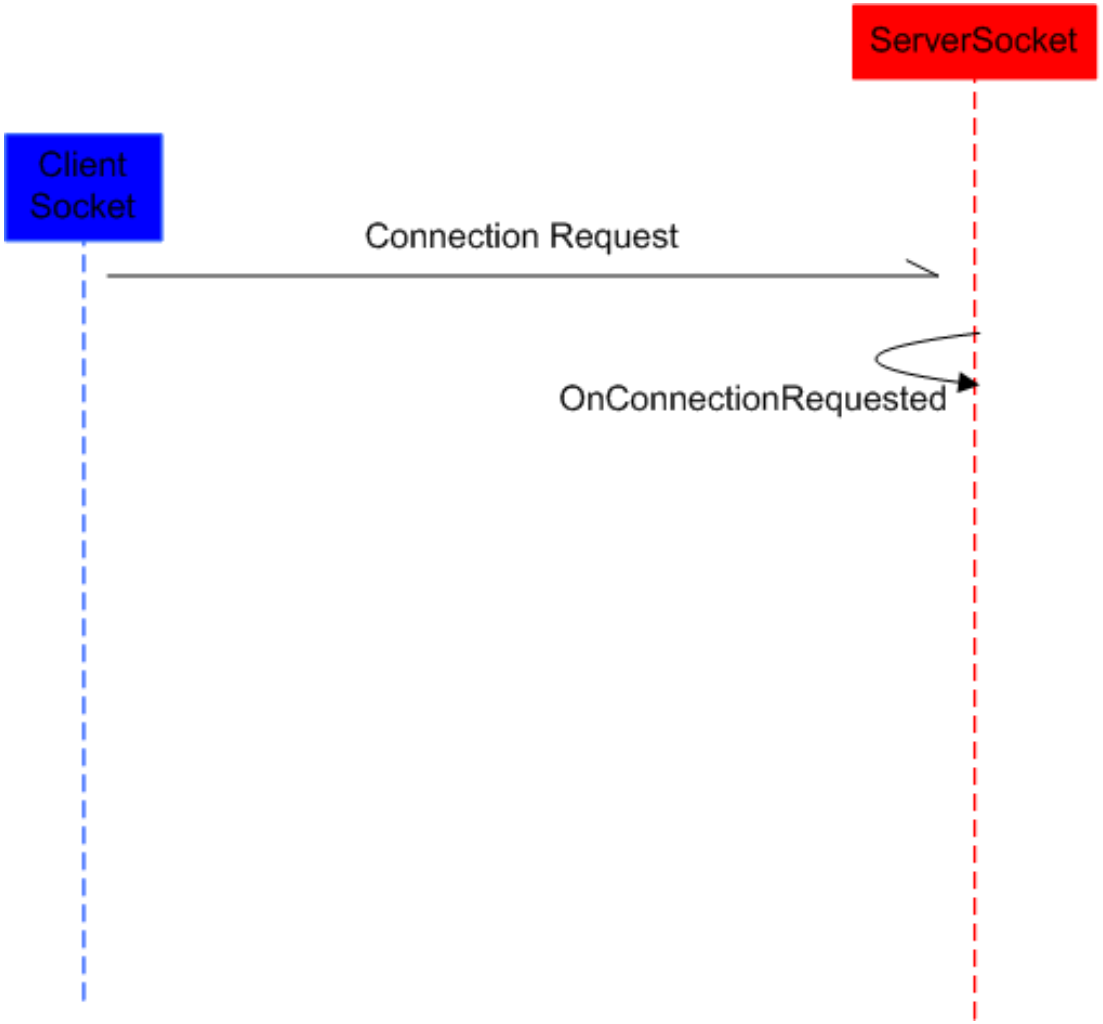
3-way Handshake



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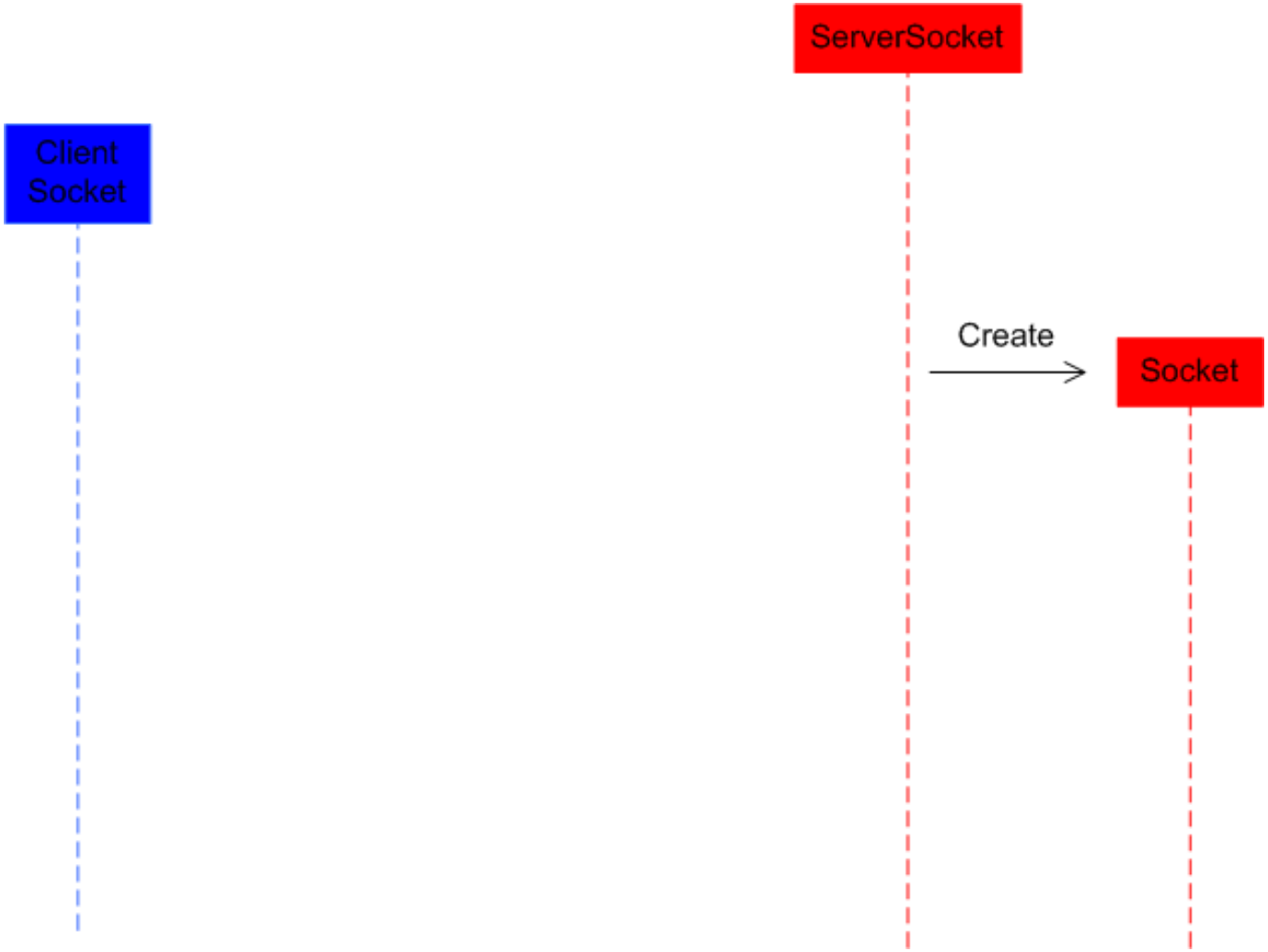

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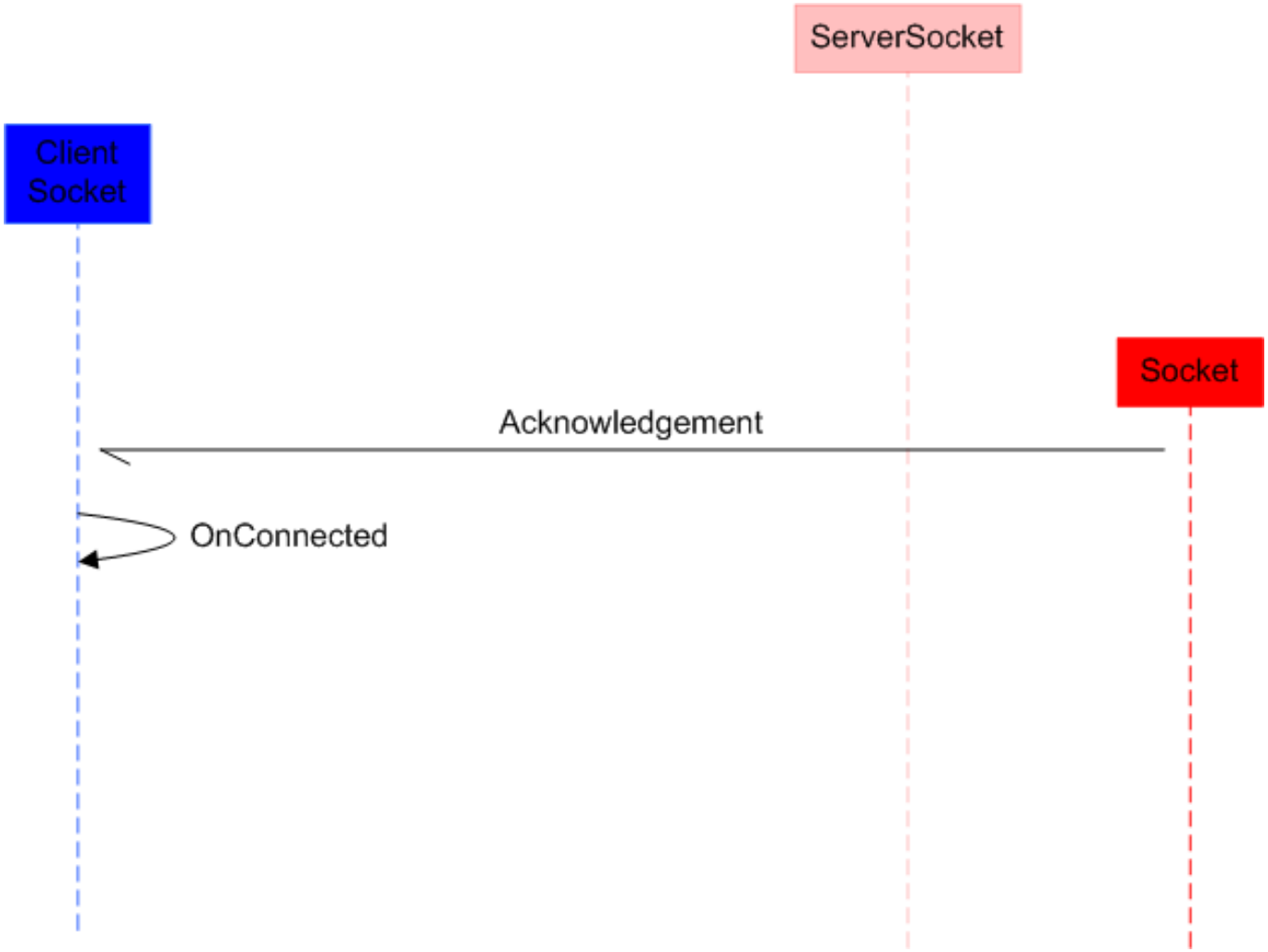

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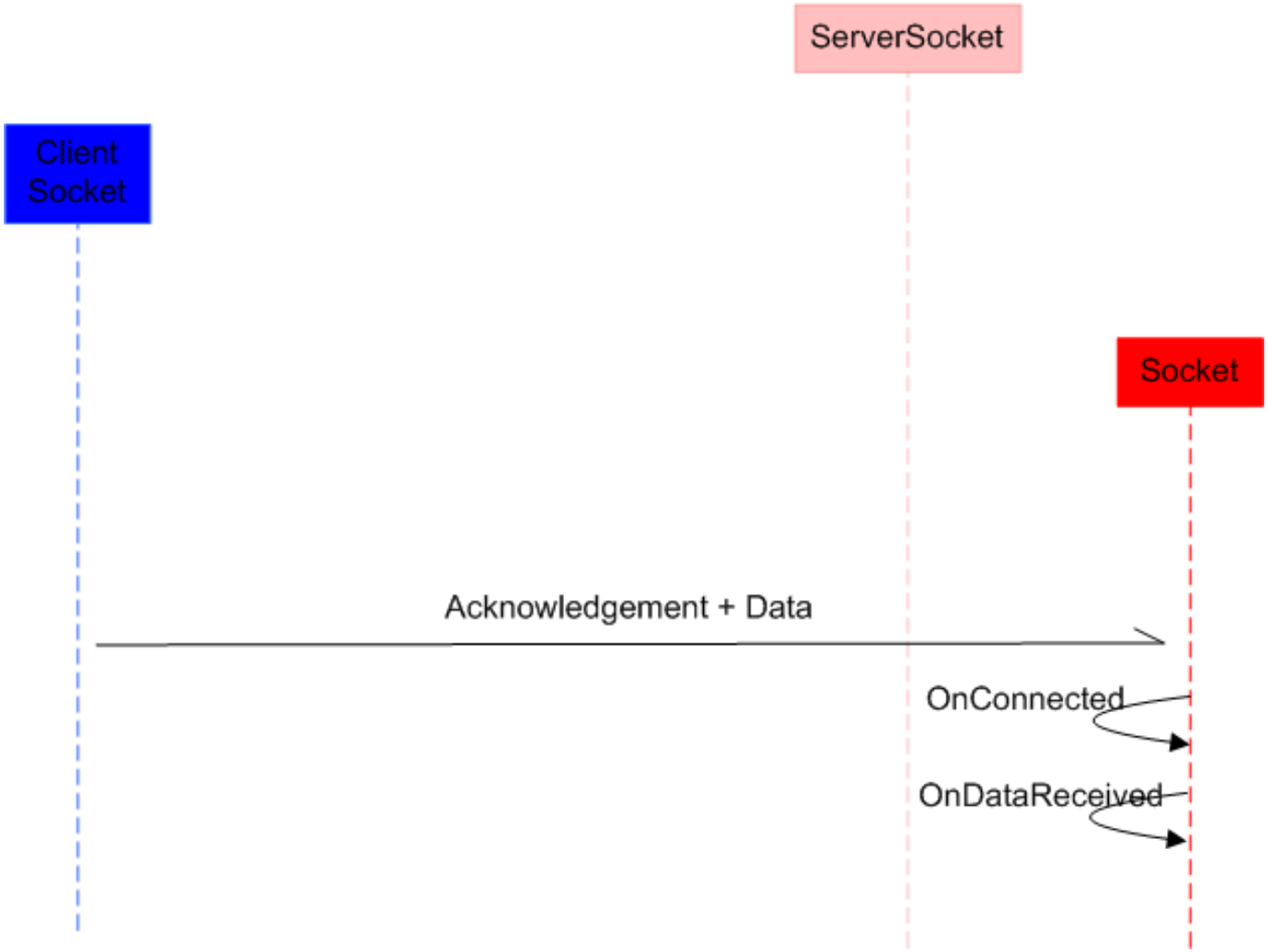
3-way Handshake



MDP Layer

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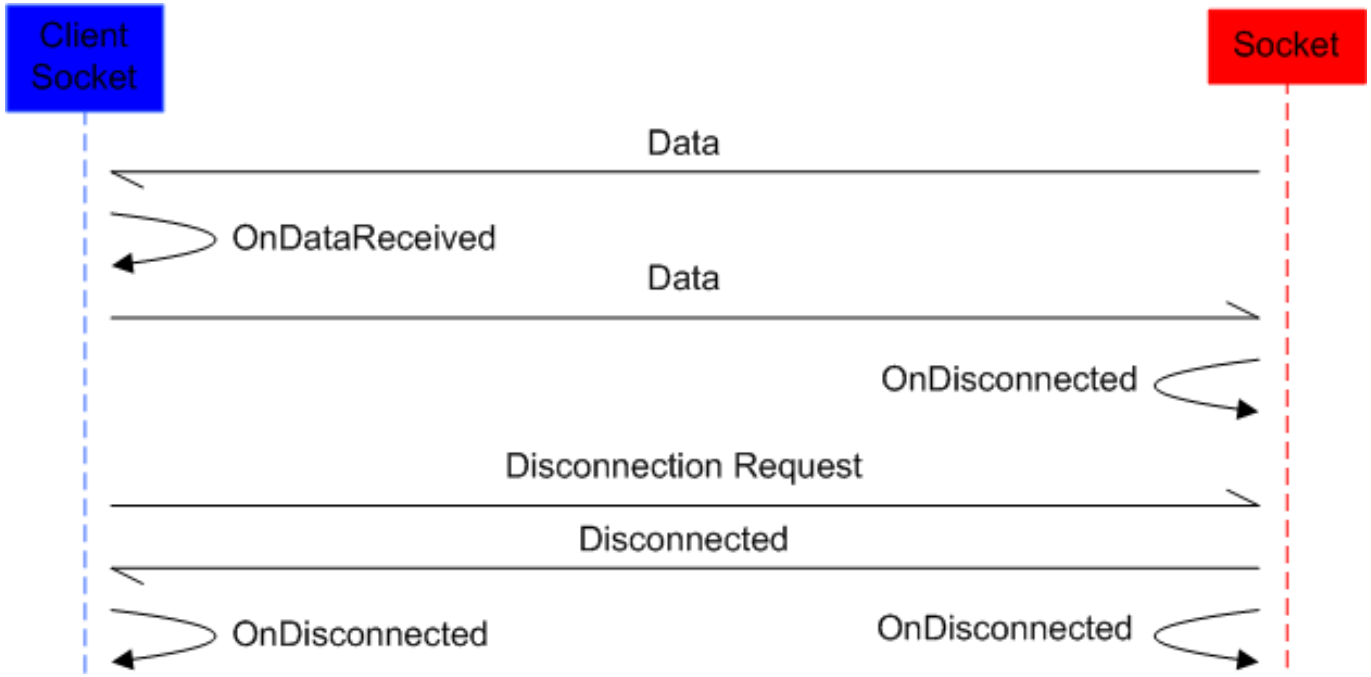

MHTTP Layer

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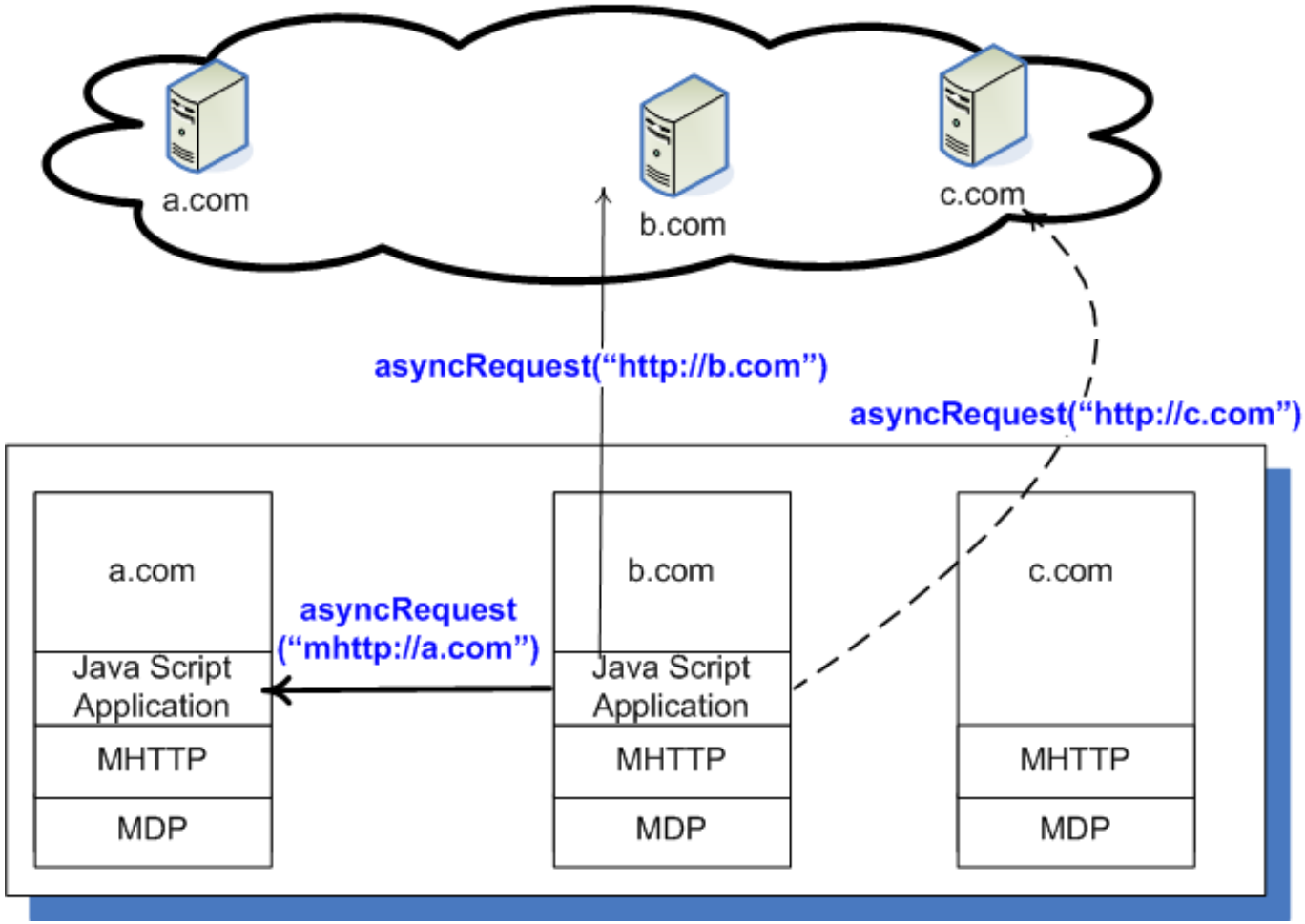

Versatile asyncRequest: mashlet-to-mashlet, same-domain & cross-domain mashlet-to-server communication.

Results

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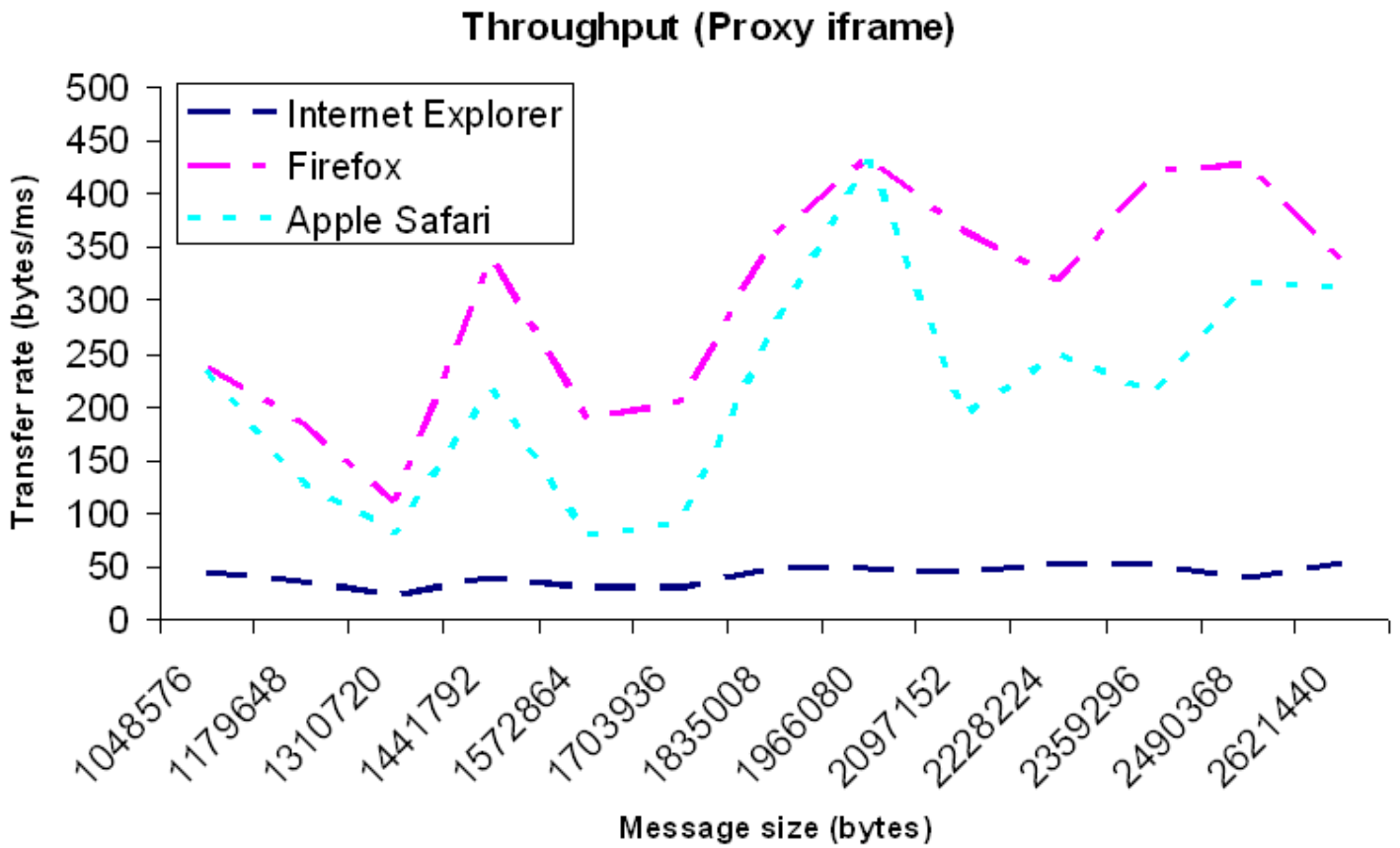
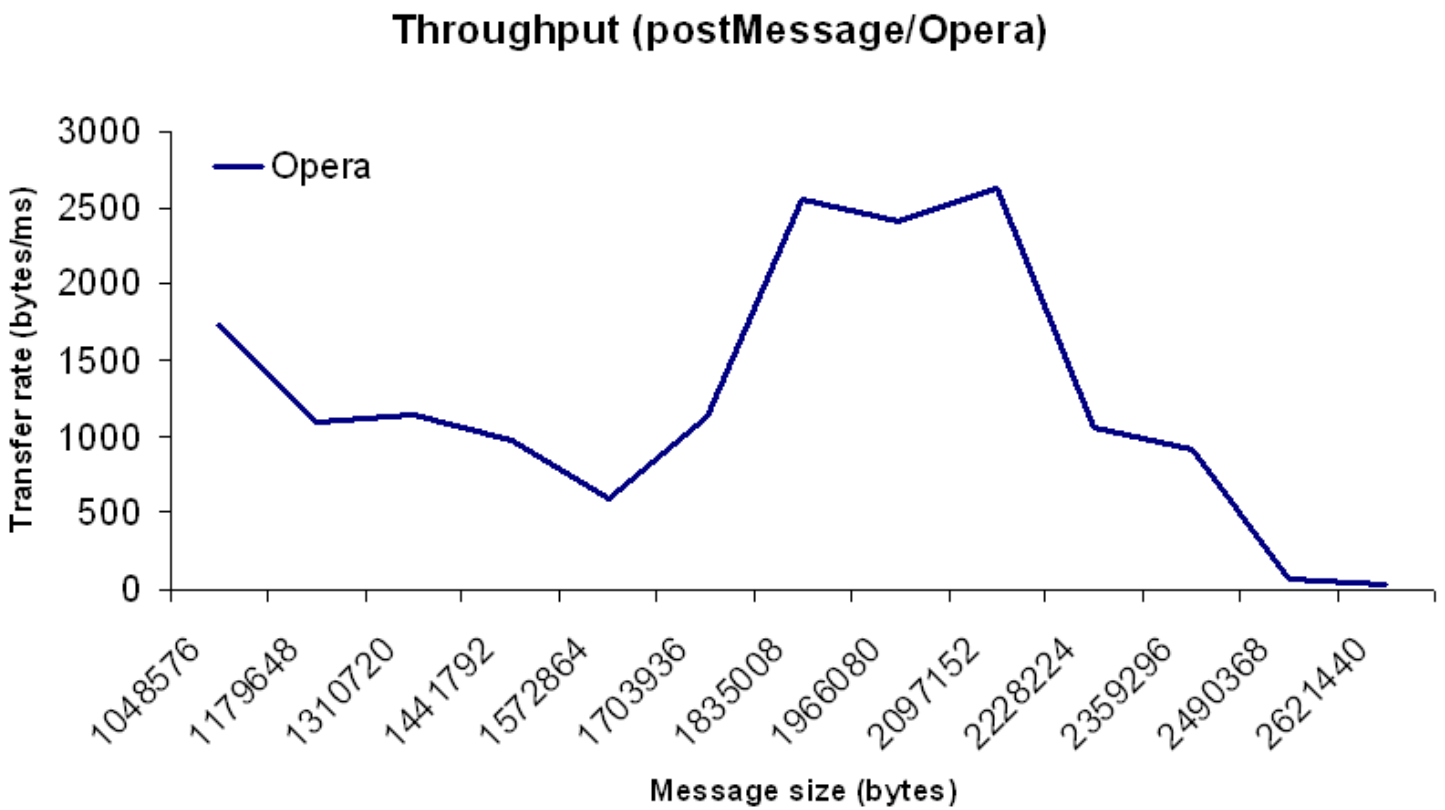


Results

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