

**HTTP State Management
Mechanisms with Multiple
Addresses User Agents**
draft-vyncke-v6ops-happy-eyeballs-
cookie-01

92nd IETF, Dallas, Mar 2015

V6OPS WG

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HTTP Session Cookie



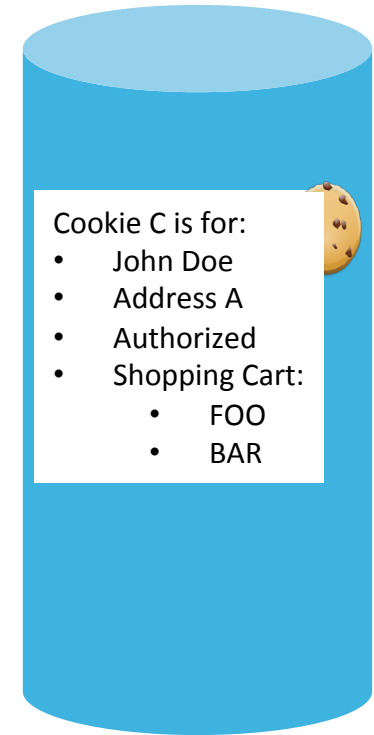
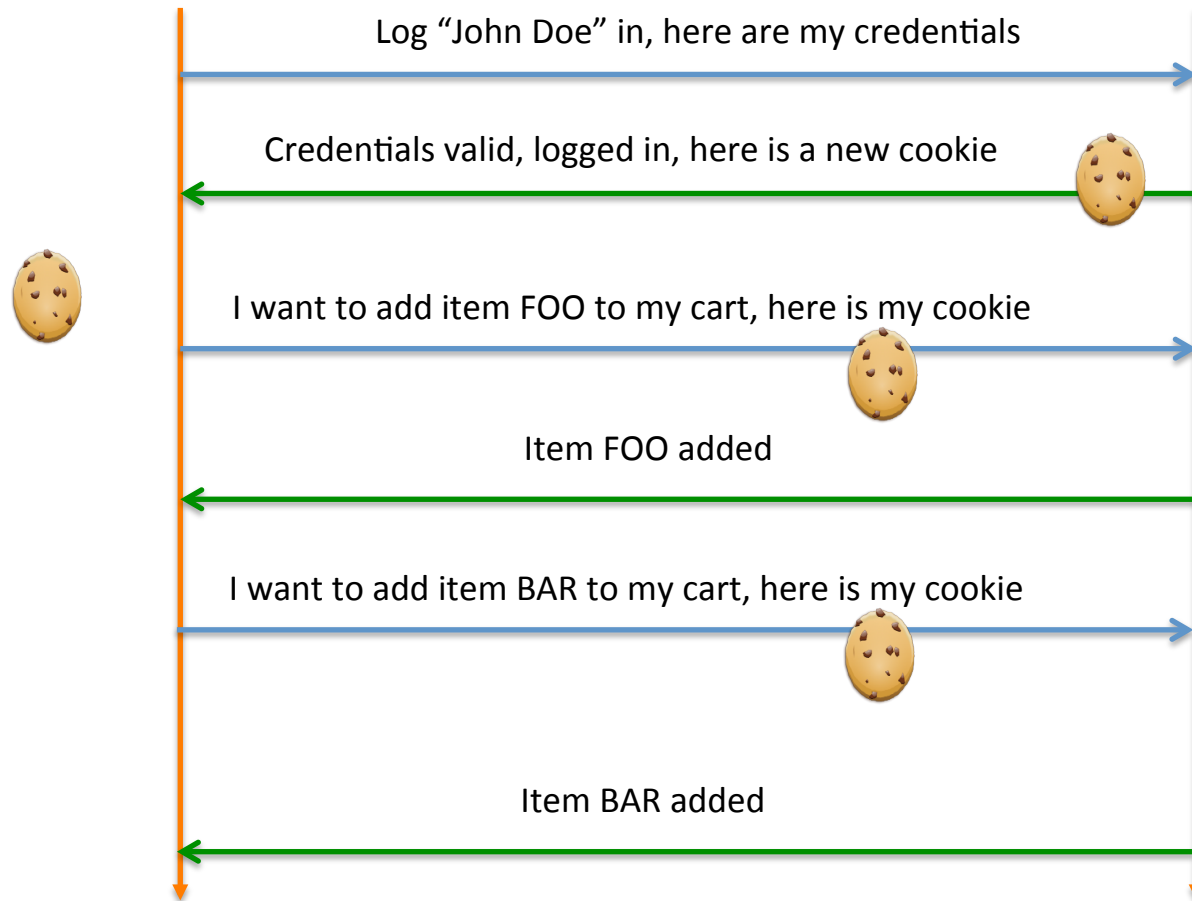
Source: wikimedia and Pinheiro

- HTTP has no transaction concept
- Application stores transaction states (e-commerce cart) on the server as a 'session'
- 'sessions' are identified by an opaque value which is unique for the length of the transaction
 - This value is transported as a HTTP header cookie
 - This value is usually an index into a server table containing all transactions
- To prevent 'session hijacking', some servers store the client IP address and check it on each HTTP request

Session Cookies at Work

John Doe with IP address A

Server



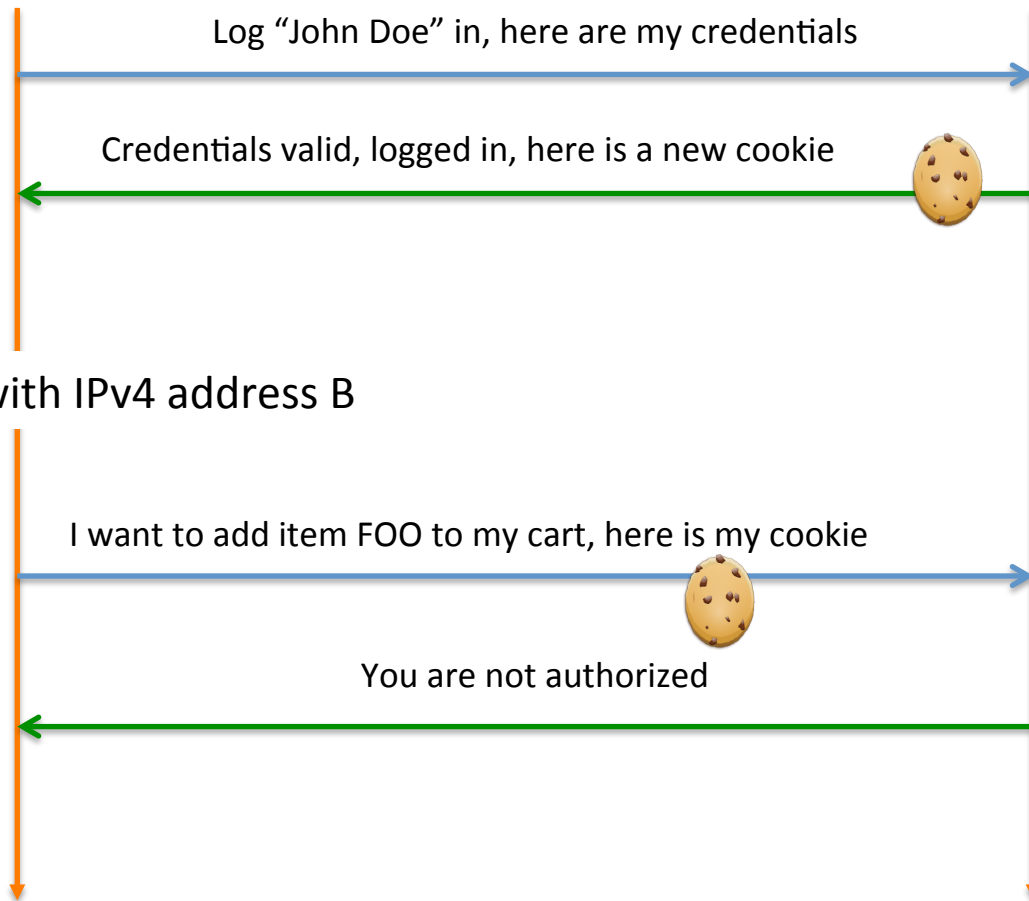
Session Cookie and IP Address Change

- User starts a transaction with IP address A
- Server allocates cookie C
- Server stores address A and checks it for all HTTP requests having cookie C
- CGN change address to B (non RFC 6888 compliant)
- Next requests from user still uses cookie C but comes from address B
- Server checks the address, $A \neq B$ and server refuses the request

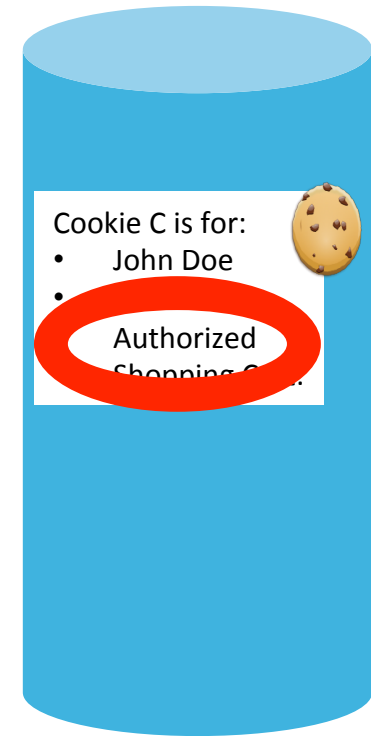
Session Cookies Changing Address

John Doe with IPv6 address A

Server



John Doe with IPv4 address B



Symptom of HTTP Requests being Denied

- Return to login screen
- or



Impact of IPv6 Deployment

- At least two content providers has stopped dual-stack deployment
 - Infosec not ready to unlink session cookie from IP address

Changes in -01

- Received a couple of (supportive) comments
 - Extended -00 to other scenarios
 - Also applicable to Some non RFC6888 REQ-2 compliant CGNs use a pool of public IPv4 addresses and same internal subscriber is mapped to different public addresses to maximize port allocation
 - Multiple interfaces,
- Posted on apps-discuss => no feedback 😞

Summary

- One IP address does not mean one user anymore
- Changing of IP address on the course of a session causes problems
- RFC 6883 section 8.2 briefly mention this
- Unsure about what to do...
 - Working group item?
 - Moving to APPS?