
SMTP adaptation with OPES

draft-ietf-opes-smtp-00.txt

OPES WG meeting on 64th IETF in
Vancouver, BC, Canada

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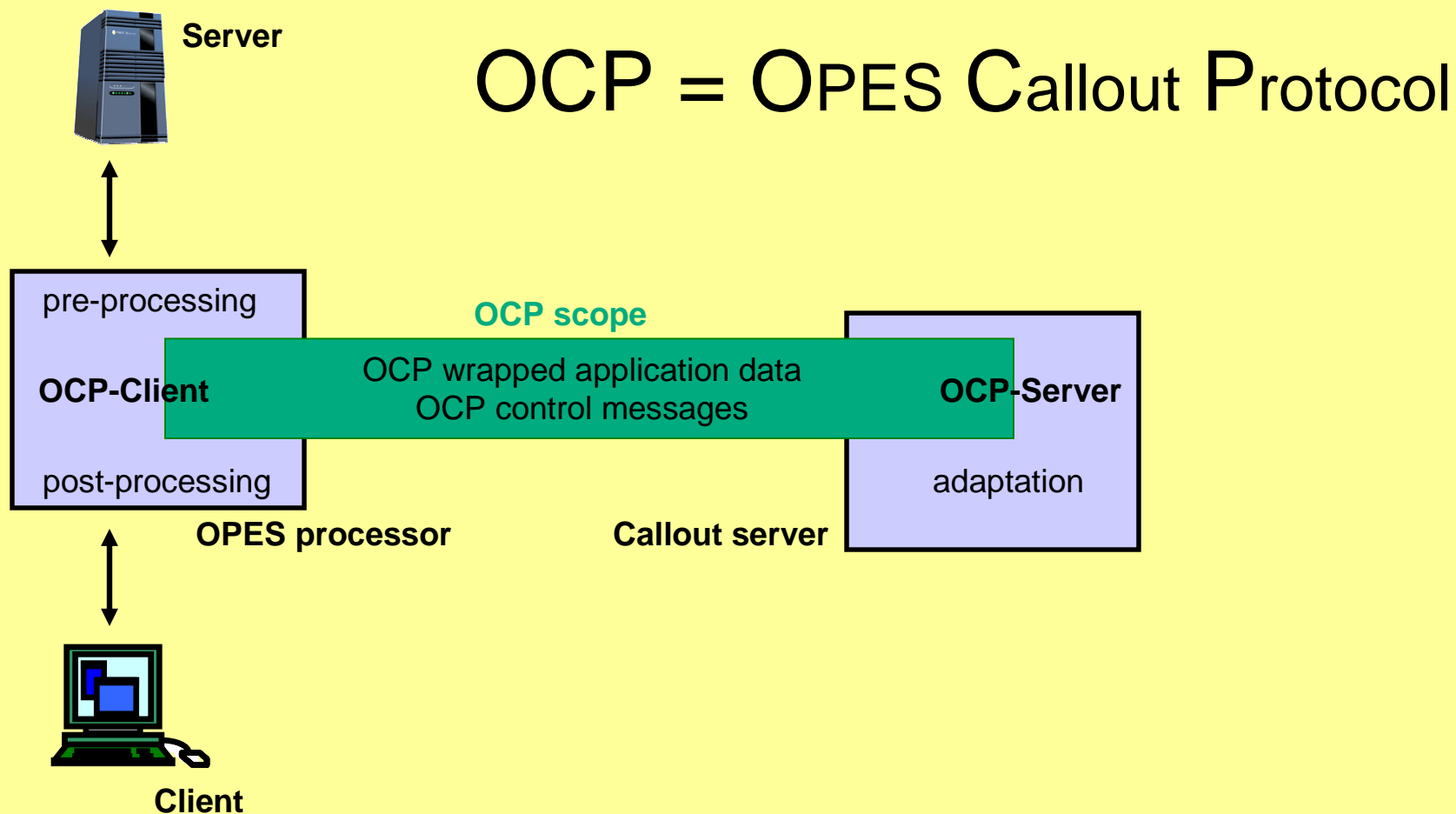
Content

- What is OPES/SMTP?
- Operation Flow of an OPES SMTP System
- Tracing
- Bypass
- (Optional Details)

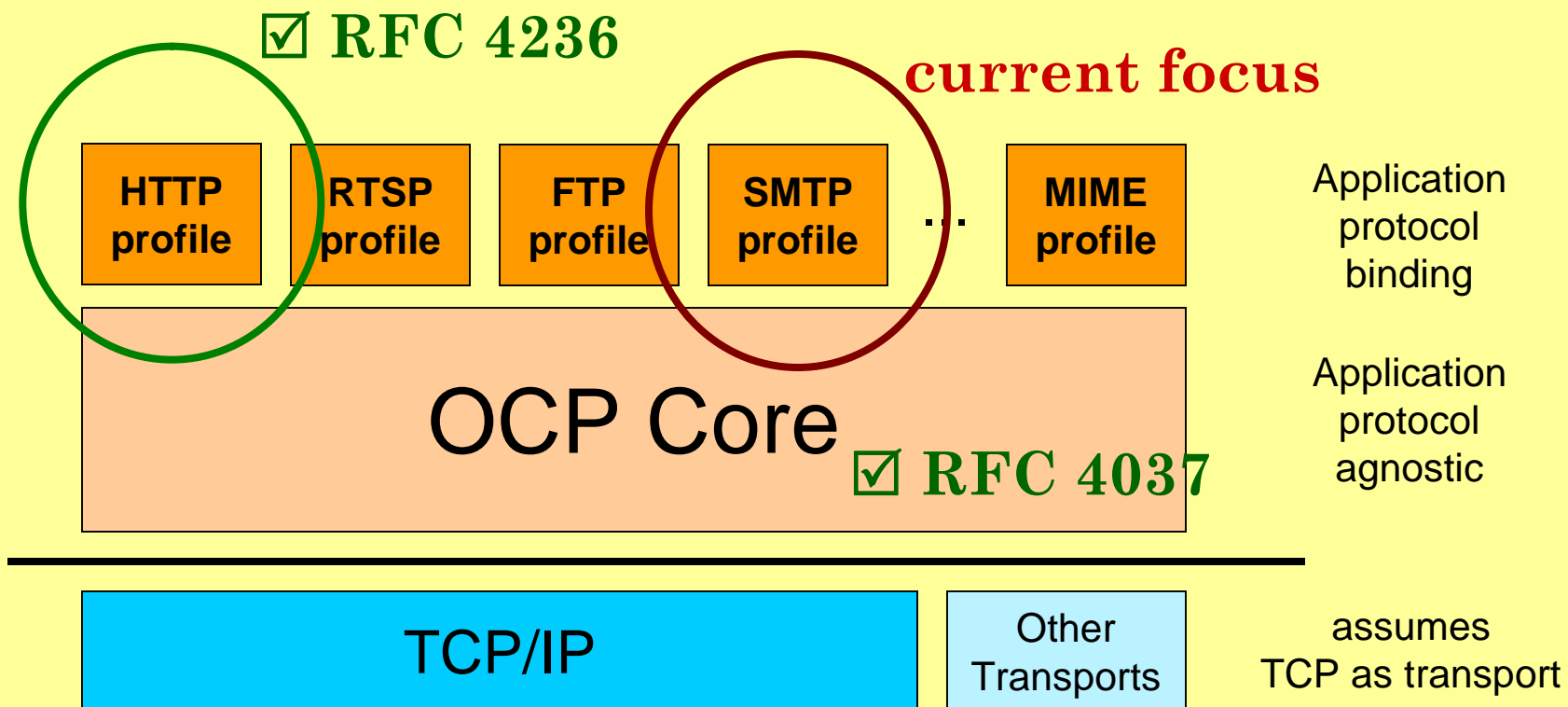
What is OPES/SMTP?

- From our charter:
 - The OPES [WG] has previously [...] developed a protocol suite for invocation and tracking of OPES services inside the net. The protocol suite includes a generic, application-agnostic protocol core (OCP Core) that is supplemented by profiles specific to the application-layer protocol used between the endpoints. So far, the WG has specified an OCP profile for HTTP, which supports OPES services that operate on HTTP messages.
 - In a next step, the WG will specify one or more OCP profiles that will support OPES services operating on SMTP.

What is OCP?



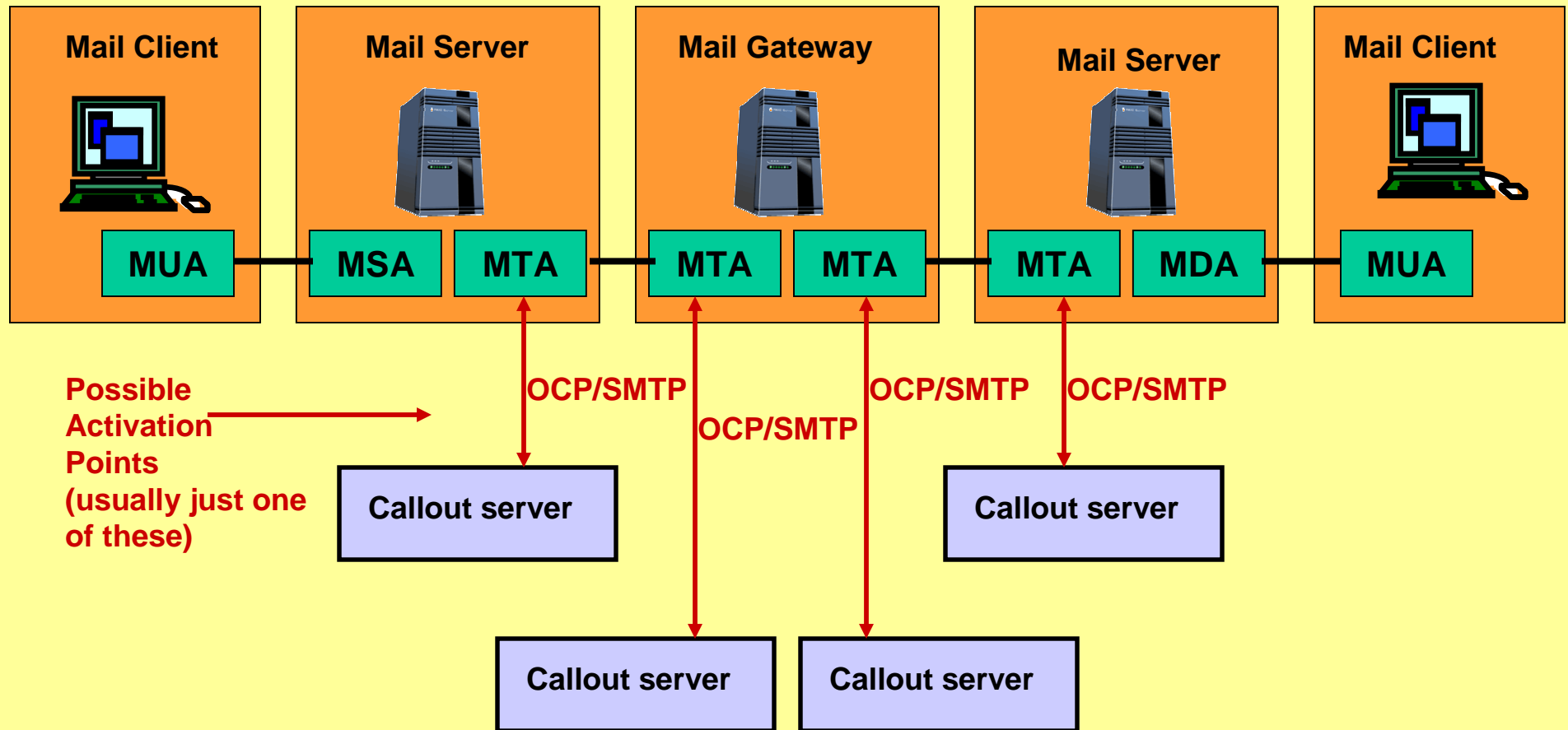
OCP/SMTP is the current target



“SMTP adaptation with OPES” is more!

- The SMTP adaptation draft does not only specify the OCP/SMTP profiles.
- It also has to deal with Tracing, Bypass and other OPES requirements
- Building on:
 - “Requirements for OPES Callout Protocols” [RFC3836]
 - “OPES Treatment of IAB Considerations” [RFC3914]
 - “Security Threats and Risks for OPES” [RFC3837]
 - and others

recap: Operation Flow of an OPES SMTP System



MUA = Mail User Agent; MTA = Mail Transfer Agent; MSA = Mail Submission Agent; MDA = Mail Delivery Agent

Two profiles

- Defines two profiles for OCP/SMTP:
 - <http://iana.org/opes/ocp/SMTP/sender>
Used while or just before sending a message
 - <http://iana.org/opes/ocp/SMTP/receiver>
Used while or just after receiving a message

Profile negotiation

- OPES processor (the MTA) offers application message parts that it allows to adapt (Adaptive-Parts) and parts that it can provide as auxiliary information (Informative-Parts)
- Callout server responds with the subset of parts that it plans to adapt and wants to see as additional meta information.

Tracing

- Trace headers **MUST** be added by the OPES processor; same as OCP/HTTP (RFC 4236)
- Example:

```
Received: from gateway.example.com ([192.0.2.138])
  by mail.example.com with testserver;
  Mon, 10 Oct 2005 05:37:19 +0200
Received: from mail2.example.org [192.0.2.99]
  by gateway.example.com id 33W9WIMC;
  Mon, 10 Oct 2005 05:35:55 +0200
OPES-System: http://mail.example.com/opes?id=33W9WIMC
OPES-System: http://gateway.example.com/opes?session=33W9WIMC
OPES-Via: http://gateway.example.com/opes?session=33W9WIMC,
http://www.opes-services-4u.com/cat/?sid=123,
http://www.opes-services-4u.com/cat/?sid=124,
http://www.opes-services-4u.com/cat/?sid=125 ; mode=A
Subject: Test
From: "Steve" <steve@example.org>
To: "Sandra" <sandra@example.com>
```

Tracing (2)

- Adding trace header gives OPES trace notifications to message receiver.
- IAB Considerations say the sender must be able to receive the trace information
- An SMTP Trace extension *could* be supported to allow the message sender to receive trace notifications

(see list of open issues at end)

Open Issues (1) – Tracing info for sender

- While SMTP tracing information for the email recipient is trivial, reliable notifications for the email sender are a problem (a general problem with SMTP not only for OPES).
- How does that correspond to the IAB considerations?
- What do you think about Delivery Status Notifications (RFC3461) and/or Message Tracking (RFC3885) to build on for OPES/SMTP?

Bypass

- IAB Considerations say the sender must be able to receive the trace information
- An SMTP extension could be supported to allow OPES bypass
- Just adding a header to an email message comes too late if bypass of an RCPT command adaptation is requested

(see list of open issues at end)

Open Issues (2) - Bypass

- OPES bypass is usually client controlled. Does that really mean email recipient controlled here?
- It is hard to check the client's bypass requests in a sender centric OPES system.
- The whole bypass idea is an issue for protocols that do not have client requests.
- Is the definition of an SMTP extension the solution?
- Or do we need an out-of-band solution?

Optional Details

List of message parts

- Many different message parts are available:
 - HELO: The argument of the HELLO command
 - MAIL: The argument of the MAIL command
 - RCPT: The argument of the RECIPIENT command
 - VRFY: The argument of the VERIFY command
 - EXPN: The argument of the EXPAND command
 - RAWDATA: The complete mail data which is sent **after** the DATA command
 - ALLHEADERS: The header of the email data
 - SINGLEHEADERS: Some or all header fields of the email data, each to be sent in a separate OCP message.
 - BODY: The body of the email data as defined
 - SECTIONS: Sections of the email body (for example MIME sections), each to be sent in a separate OCP message.

Negotiation Example 1

[P=OPES processor, S=Callout Server]

```
P: NO {"38:http://iana.org/opes/ocp/SMTP/receiver"  
      Adaptive-Commands: (RCPT,DATA)  
      Informative-Commands: (IP,HELO,MAIL)  
      })  
      SG: 25  
      ;  
S: NR {"38:http://iana.org/opes/ocp/SMTP/receiver"  
      Adaptive-Commands: (DATA)  
      Informative-Commands: (MAIL,RCPT)  
      }  
      SG: 25  
      ;
```

Negotiation Example 2

[P=OPES processor, S=Callout Server]

```
P: NO {"38:http://iana.org/opes/ocp/SMTP/receiver"  
      Adaptive-Commands: (MAIL,RCPT)  
      Informative-Commands: (IP,HELO,SINGLEHEADERS)  
      }  
      SG: 25  
      ;  
S: NR {"38:http://iana.org/opes/ocp/SMTP/receiver"  
      Adaptive-Commands: (MAIL,RCPT)  
      Informative-Commands: (IP,HELO,SINGLEHEADERS)  
      Header-List: (From,To,Reply-To,Received)  
      }  
      SG: 25  
      ;
```

Message Flow

- Data Use Mine (DUM) and Data Use Yours (DUY) messages are used to exchange the application message parts
- DUM, DUY are defined in OCP Core
- Additional parameters are added
 - Allow: OPES processor lists which additional parameters are supported
 - SMTP-Error: Callout server replies with an SMTP error instead of content adaptation (for example: “550 No such user here”)
 - Add-Header: Callout server asks the OPES processor to add a header to the email.

Example (1)

DUM 72 1 0

Kept: 0

AM-Part: MAIL

19:<steve@example.org>

;

DUM 72 1 19

Kept: 19

AM-Part: RCPT

18:<paul@example.com>

;

DUM 72 1 37

Kept: 37

AM-Part: RAWDATA

49:From: steve@example.org

To: sandra@example.com

;

DUM 72 1 86

Kept: 86

AM-Part: RAWDATA

41:Subject: Test

Hi, this is a test!

.

Example (2)

Example: P=OPES processor, S=Callout Server

P: DUM 72 1 0

Kept: 0

AM-Part: RCPT

Allow: (SMTP-Error)

18: <paul@example.com>

;

S: DUM 72 1 0

AM-Part: RCPT

SMTP-Error: "21:550 No such user here"

0:

;

SMTP Extensions

- OCP/SMTP is prepared to handle SMTP extensions
 - The callout server lists the SMTP extensions it knows and supports in its negotiation response message (with the same keyword that is used in EHLO responses)
 - Message part list is extendable
 - The OPES processor can then send the data in the same way to the callout server as it would do to SMTP receivers
 - Extension meta information via AM-OPT param