

# The big file emailing problem

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San Francisco / Virtual


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# Problem Statement

- End-users want to send files to each other
- Emails are limited to about 10Mb, as they have been for the past 20+ years
- The file sizes that end-users create keep getting bigger (4k video!)
- There is no standard solution

# Solutions

Large files must be shared with Google Drive ✕



Attachments larger than 25MB will be automatically uploaded to Google Drive. A download link will be included in your emails. 

[Learn more](#)

Cancel OK, got it

Attaching file ✕

Your file is larger than 25MB. It will be sent as a [Google Drive](#) link.

 4brons-final.mp4 38.8M  ✕

Cancel

**Someone needs access to the file**


 brong@brong.net

**Turn link sharing on**  
Anyone with the link can view

Don't give access CANCEL SEND


**Bron Gondwana**  
to BrongNet B [Hide details](#)

**From:** Bron Gondwana <brongondwana@gmail.com>  
**To:** BrongNet B <brong@brong.net>  
**Subject:** A test file  
**Date:** Monday, 26 July 2021 20:09  
**X-Spam-Score:** 0.0  
**Size:** 11 KB

 4brons-final.mp4

↩ Reply ➦ Forward

# Solutions



**Would you like to deliver this file using Mail Drop?**

This attachment is too large to send in email. Mail Drop can deliver large files by making them available in the cloud. Recipients can download them from iCloud for the next 30 days.

Don't ask again

[Don't use Mail Drop](#) | [Use Mail Drop](#)

**Bron Gondwana**  
to Bron Gondwana [Hide details](#)

**From:** Bron Gondwana <brongondwana@icloud.com>  
**To:** Bron Gondwana <brong@brong.net>  
**Subject:** A big file from icloud  
**Date:** Monday, 26 July 2021 20:19  
**X-Spam-Score:** 0.0  
**Size:** 14 KB

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Attachment available until 25 August 2021.

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[Download from iCloud](#)

4brons-final.mp4  
40.69 MB

Attaching file... 14.81 MB of 40.69 MB, 989.68 KB/sec - About 30 seconds Hide



4brons-final.mp4  
Uploading...

# Solutions

How do you want to share this file?

 This file is too large to send as an attachment. The largest file you can send is 33 MB. Try sharing with OneDrive.



Upload and share as a OneDrive - Personal link

Upload to the Email attachments folder. Recipients can see the latest changes and work together in real time.



Attach as a copy

Recipients get a copy to review.

To

B

brong@brong.net



Outlook large file



4brons-final 1.mp4

Anyone can edit



**Bron Gondwana** <brongondwana@outlook.com>

to brong@brong.net [Hide details](#)

**From:** Bron Gondwana <brongondwana@outlook.com>

**To:** brong@brong.net <brong@brong.net>

**Subject:** Outlook large file

**Date:** Monday, 26 July 2021 20:34

**X-Spam-Score:** 3.3

**Size:** 17 KB

Bron Gondwana has shared a OneDrive file with you. To view it, click the link below.

 [4brons-final 1.mp4](#)

# Problems to solve

1. Upload of large files (restart)
2. Ownership/Responsibility of data
3. Discoverability/Embedability
  - Disposition: attachment vs inline
  - The virus-check / link follow problem
  - Search: “emails with attachments”

# 1. Upload of large files

- This is a general problem
  - httpbis?
  - httpapi?
- IMAP / SMTP doesn't support it
- We'd love this for JMAP
  - My blob draft allows server-side concatenation so you can duct tape it by uploading chunks and joining them server side, but it's horrible.

## 2. Ownership / Responsibility

- With “regular” emails, entire content is sent.
- Sender may keep a copy, but it’s not necessary for the protocol.
- iCloud gives an expiry date, others don’t even do that.
- Need a general way for recipient system to take a copy and tie lifetime to email lifetime.
- Centralised systems can upload and recount, but email is decentralised.



# 3. Discoverability

Gmail:

```
--000000000000fce15305c803f468
Content-Type: text/html; charset="UTF-8"
Content-Transfer-Encoding: quoted-printable

<div dir=3D"ltr"><div></div><div class=3D"gmail_chip gmail_drive_chip" style=
e=3D"width:396px;height:18px;max-height:18px;background-color:rgb(245,245,2=
45);padding:5px;color:rgb(34,34,34);font-family:arial;font-style:normal;font=
t-weight:bold;font-size:13px;border:1px solid rgb(221,221,221);line-height:=
1"><a href=3D"https://drive.google.com/file/d/151vVpEZ5xS3stFM4SHifIIDMvKGr=
y8Fs/view?usp=3Ddrive_web" target=3D"_blank" style=3D"display:inline-block;=
max-width:366px;overflow:hidden;text-overflow:ellipsis;white-space:nowrap;t=
ext-decoration:none;padding:1px 0;border:none" aria-label=3D"4brons-final.m=
p4"><img style=3D"vertical-align: bottom; border: none;" src=3D"https://ssl=
.gstatic.com/docs/doclist/images/icon_10_generic_list.png">=C2=A0<span dir=
=3D"ltr" style=3D"color:rgb(17,85,204);text-decoration:none;vertical-align:=
bottom">4brons-final.mp4</span></a><img src=3D"//ssl.gstatic.com/ui/v1/icon=
s/common/x_8px.png" style=3D"opacity: 0.55; cursor: pointer; float: right; =
position: relative; top: -1px; display: none;"></div><div></div><div>Attach=
ed a file<br></div></div>

--000000000000fce15305c803f468--
```

# 3. Discoverability

iCloud:

```
<html><body><div><div class=3D"x-apple-maildropbanner" data-expiration=3D"162988679200=
0" style=3D"font: 13px 'SFNSText', 'Helvetica Neue',sans-serif; color: #80=
8080; font-weight: 300; -webkit-text-size-adjust: 100%;"><div style=3D"hei=
ght:0px; border-top:1px solid #ecec; margin-right:-20px"></div><div styl=
e=3D"height:53px; overflow:auto"><div style=3D"float:left; margin-top:13px=
;; margin-right:62px"><div style=3D"height:19px; display:table-cell; verti=
cal-align:bottom">Attachment available until 25 August 2021.</div></div><d=
iv style=3D"float:right; width:62px; margin-left:-62px"></div></div><div s=
tyle=3D"height:0px; border-top:1px solid #ecec; margin-bottom:15px; marg=
in-right:-20px"></div></div><div><br data-mce-bogus=3D"1"></div><div cont=
enteditable=3D"false"><div class=3D"x-apple-maildrop" data-url=3D"https://=
cvws.icloud-content.com/B/AbENWwsn4MeuifvEuEtZbnCKeZ1vAbc_ubs1vYI13cAH0JfG=
J4oEJxJff/4brons-final.mp4?o=3DAjMORjIY11n_LV5sEgspLEKI8KtTyKwy6wivY8mbI1ED=
&amp;v=3D1&amp;x=3D3&amp;a=3DCAogaowjHA-jeolZYXMLAajFFyxX9G01ubqlyVSDQktPB=
vkSeBDk88-Sri8Y5IPL5rcvIgeAKgkC6AMA_37QY4pSBIP5nW9aBAQnF99qJszIH7bWIFkOo88=
r1lRj0zDDbHrnRd9jSTLQ9_-HYMpQUUKRfvcpciYL1Ee7tElrLLWqbF9qpul-sv15zklImFKWD=
e1-d0X46AdlZjr_WQ&amp;e=3D1629886792&amp;fl=3D&amp;r=3D46a24c75-2a9a-40dc-=
8f99-70fbf3d2feaf-1&amp;k=3DCqxQt8pR-Hvum-QRtKCG0Q&amp;ckc=3Dcom.apple.lar=
geattachment&amp;ckz=3DApple-Webmail&amp;y=3D1&amp;p=3D62&amp;s=3DjeDLIitu=
-D51C_1F17WpJFw2Gwo" data-filename=3D"4brons-final.mp4" data-size=3D"40686=
498" data-expiration=3D"1629886792000" data-recordid=3D"668e7902-d2c9-4956=
-a041-e1355868a247" style=3D"margin: 15px 15px 15px 0px; -webkit-text-size=
-adjust: 100%;border: 1px solid #CACACA; border-radius:15px; height:134px; =
display:inline-block; vertical-align: middle; min-width:159px; font-family=
:'SFNSText','Helvetica Neue',sans-serif; text-align: center;"><a target=3D=
"_blank" href=3D"https://www.icloud.com/attachment/?u=3Dhttps%3A%2F%2Fcvws=
.icloud-content.com%2FB%2FABENWwsn4MeuifvEuEtZbnCKeZ1vAbc_ubs1vYI13cAH0JfG=
J4oEJxJf%2F%247Bf%7D%3Fo%3DA12RZzMVlwjCYMLXtpd4GMgoOfdi5GjqsVvppNEjKwi2%2=
6v%3D1%26x%3D3%26a%3DCAogOHBMKtgk9ERB0Ep0h704g69Zhv35p9bjCb24GviS0SeBDu8=
8-Sri8Y7oPL5rcvIgeAKgkC6AMA_37QiStSBIP5nW9aBAQnF99qJtLdb9TWDPjFPh_RLLISdIf=
M0siQci1tCywxpVITy3aXyGB1CeRWciaoS32gsg5paPclJg0rxDqtjG4rkuG3aTsolm690_Sc=
0m626XxpQ%26e%3D1629886792%26f1%3D%26r%3D46a24c75-2a9a-40dc-8f99-70fbf3d2f=
eaf-1%26k%3DCqxQt8pR-Hvum-QRtKCG0Q%26ckc%3Dcom.apple.largeattachment%26ckz=
%3DApple-Webmail%26y%3D1%26p%3D62%26s%3DUK20fVhtNyhMzjVRTrOoPMYlv8&amp;uk=
=3D&amp;f=3D4brons-final.mp4&amp;sz=3D40686498" style=3D"text-decoration: =
none; outline: 0; font-size: 14px; color: #007AFF; display:block; margin:4=
0px 10px 0px">Download from iCloud</a><div style=3D"text-align: center; fo=
nt-size:12px; color:#808080"><div style=3D"margin:4px 10px 0px">4brons-fin=
al.mp4</div><div style=3D"margin:3px 10px 0px">40.69 MB</div></div></div><=
/div></div></body></html>
--Apple-Webmail-86--6a537a90-7f21-4087-abbd-77b57f669c70--
```



# 3. Discoverability

- Arbitrarily following links from emails is dangerous (GET side effects, content can change, timing/privacy leaks)
- Hard to know which links are “attached files”
- Lifetime uncertain
- Content can change after delivery (bypass virus and spam checks)

# Proposal

- Upload work – to one of the http groups
- Ownership/Discovery: new MIME type, something like: application/remote-content
- Digest for content integrity protection and immutability
- Expiry timestamp tied to link
- UUID for deduplication and data lifetime
- Content-ID linkability within the message
- Recipient server SHOULD download a copy to virus check and then retain it for the lifetime of the email

# e.g.

```
-----=_Part_385484_783853576.1627029384108
Content-Type: application/remote-data
Remote-Location: https://foo.com/attachments/randomid.mp4; expires=2021-07-25T00:00:00
Remote-Location: https://archive.foo.com/archive/randomid.mp4;
expires=2021-12-31T23:59:59
Remote-Size: 12345678
Remote-Digest: Sha256-
hex=e0f9b4c2ecf96b43c1a5c40bc92e7ff655c28dd7e4c2f18f5e4fd62d6330b0c3;
  Sha1-hex=b1df92447144f2549c69b1ff5627e59292038898
Remote-Content-Type: video/mp4
Remote-Disposition: attachment

<body>
This is a remote attachment, you can download it at <a href="https://foo.com/attachments/randomid.mp4">https://foo.com/attachments/randomid.mp4</a>.
</body>
-----=_Part_385484_783853576.1627029384108--
```

# Conclusion

- Has this already been solved somewhere and I just don't know where to look?
- Am I barking up entirely the wrong tree?
  - I assume SMTP isn't going to allow gigabyte files
  - I assume users are going to keep wanting to email larger and larger files.
  - I assume that email recipients want the lifetime of the files they have been sent to be identical to the emails themselves (so if they don't delete the email, they don't lose the file)
  - We need this for calendar event attachments too... and presumably every other messaging system has the same problem.
- Is there interest in doing work in this space?
  - What is a sensible group for it if so?
  - Who wants to get involved?