

ARFNET2 deployment

After the disastrous ISP schism

Masterplan

Stage 1: very safe

- Close all ports
- Nuke (or stop) all old VMs (exclude OPNSense)
- Make DMZ
- Make new basic VMs (cloning deb12 template)
- Open basic ports

Stage 2: new services

- IONOS VPS for mail
- Some new very safe services
- HE IPv6 tunnel
- Own authoritative nameservers for domain zone

*Stage 3: finally

- Another VPS in unknown provider for
 - Tor
 - Reverse-proxying the media library
- PHP on main site with more web services from scratch, hopefully secure
- More new services

Stage 4: DN42

- Make DN42 router VM with bird and wg
- Peer with people
- Bring up BGP sessions
- Services

Stage 5: Telephony

- Asterisk
- IP phones and ATAs
- Trunks; SDF, Tandmx, uwutel, PSTN

*Stage 6: Site B (piso)

- Firewall and switch
- Site to Site wireguard
- Establish telephony

*Stage 7: CA, PKI, LDAP and SSO

- Unify all logins
- Single authentication and authorization LDAP store
- SSO on as many services as possible
- Private CA PKI server certs for private endpoint security
- User certificates for extra secure endpoints

*Stage 8: Internal DNS

- Drop OPNsense unbound, use BIND
- Use .local.arf20.com zone or something
- PiHole

Domain

arf20.com

Registrar: namecheap

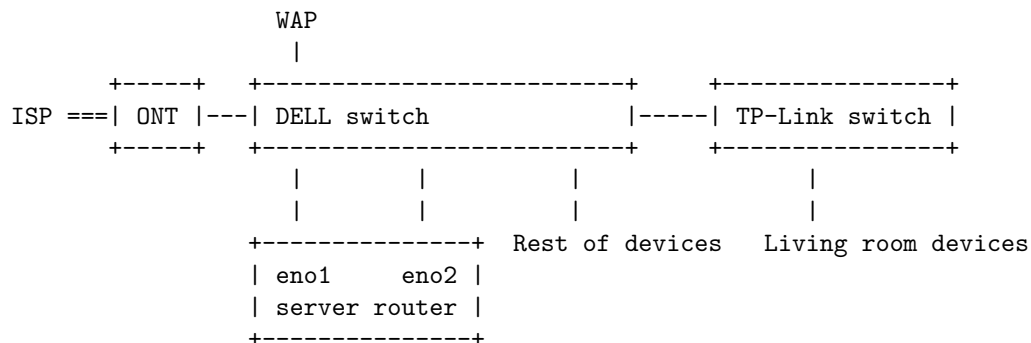
Name sever glue records at registrar

| Nameserver | Name | IP |
|------------|---------------|------------------------------------|
| NS1 | ns1.arf20.com | 2.59.235.35 2600:70ff:f039:4::13 |
| NS2 | ns2.arf20.com | 5.250.186.185 2001:ba0:210:d600::1 |

Networking

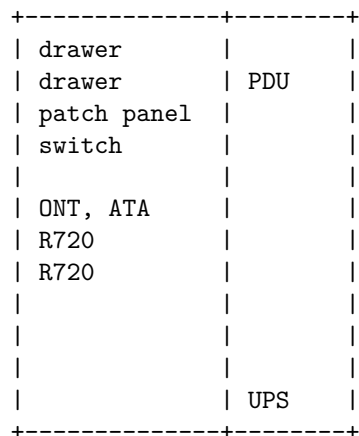
Hardware

Physical network



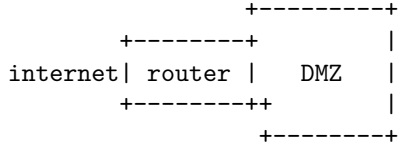
- 1000BASE-T
= GPON fiber

12U rack



- ONT: CPE Huawei GPON
- switch: DELL PowerConnect 5424
- server: DELL PowerEdge R720 @ 2x E5-2670 + 64GB + (240+120)GB SSD + (4+3x7RAID5)TB HDD
- ATA: Cisco/Linksys PAP2T

Logical network



DELL PowerConnect 5424 switch Port assignments

| port | endpoint | options |
|------|---------------------|-----------------|
| g2 | ONT | VLAN access 2 |
| g4 | server eno2 WAN | VLAN access 2 |
| g6 | test2 | VLAN access 2 |
| g3 | WAP | VLAN access 5 |
| g5 | PC | VLAN access 4 |
| g7 | Living R. | VLAN access 5 |
| g9 | server eno1 DMZ+LAN | VLAN trunk 4, 5 |
| g12 | voip poe switch | VLAN access 9 |
| g15 | test4 | VLAN access 4 |
| g16 | ATA | VLAN access 4 |
| g17 | test1 | VLAN access 1 |
| g19 | test5 | VLAN access 5 |
| g21 | iDRAC | VLAN access 4 |
| g23 | printer | VLAN access 4 |

Management

- interface vlan 4: 192.168.4.2/24 gw 192.168.4.1

Public IPs

- AVANZA_STATIC: 2.59.235.35
- AVANZA_CGNAT: dynamic 100.x.x.x
- HE prefixes
 - 2001:470:1f21:125::/64
 - 2600:70ff:f039::/48
- IONOS VPS: 5.250.186.185 2001:ba0:210:d600::1

Gateways

- AVANZA
 - WAN_STATIC: 2.59.235.1
 - WAN_CGNAT: dynamic
- HE v6 tunnel
 - server: 216.66.87.102, 2001:470:1f20:125::1/64
 - client: 2.59.235.35, 2001:470:1f20:125::2

Physical and Logical Networks

| name | VLAN | net | desc |
|-------|------|---|--------------------------|
| WAN | 2 | | |
| DMZ | 4 | 192.168.4.0/24 2600:70ff:f039:4::/64 | Services |
| LAN | 5 | 192.168.5.0/24 2600:70ff:f039:5::/64 | Clients |
| VPN | | 192.168.6.0/24 2600:70ff:f039:6::/64 | Wireguard clients |
| dark | | 192.168.7.0/24 | dark IPsec remote subnet |
| B:PSN | un | 192.168.18.0/24 | Site-B:PisoNET |
| B:SBN | | 192.168.8.0/24 | Site-B:SiteBNET |
| voip | 9 | 192.168.9.0/24 | VoIP |
| dn42 | 42 | 172.20.196.32/27 fdff:acab:caca::/48 | DN42 ARFNET-MNT |

Firewall

Interface Rules

- WAN_CGNAT in
 - deny *
- WAN_STATIC in
 - allow v4 from * to {services} -> NAT rules
- DMZ in
 - deny v4 to LAN net
 - allow v4 to firewall
 - allow v4 to * gw WAN_STATIC
 - allow v6 to * gw HE_TUNNELV6
- LAN in
 - allow v4 ICMP to firewall
 - allow v4 IP DNS to firewall
 - allow v4 to DMZ net
 - allow v4 to * gw WAN_CGNAT
 - allow v6 to * gw HE_TUNNELV6
- Wireguard in
 - allow v4+6 to DMZ net
 - allow v4 to * gw WAN_CGNAT
 - allow v6 to * gw HE_TUNNELV6

IPv4 NAT Rules

| Service | Customer | IPProto | Ext Port | Host | Re Port |
|------------|----------|---------|----------|--------|---------|
| WireGuard | | UDP | 51820 | router | |
| DNS NS1 | | TCP/UDP | 53 | misc | |
| iperf3 | | TCP | 5201 | misc | |
| NNTP | | TCP | 119 | misc | |
| Web | | TCP | 80,443 | web | |
| Git | | TCP | 9418 | web | |
| bittorrent | | TCP/UDP | 8999 | nas | |
| rsync | | TCP/UDP | 873 | nas | |
| IRC | | TCP | 6667 | comm | |

| Service | Customer | IPProto | Ext Port | Host | Re Port |
|--------------------|----------|---------|-------------|---------|---------|
| IRCS | | TCP | 6697 | comm | |
| XMPP c2s | | TCP | 5222 | comm | |
| XMPP s2s | | TCP | 5269 | comm | |
| TURN STUN | | TCP/UDP | 3478 | comm | |
| TURN | | TCP/UDP | 5349 | comm | |
| TURN UDP relay | | TCP/UDP | 49152-50176 | comm | |
| mc waterfall proxy | | TCP | 25565 | game | 25567 |
| mc bedrock geyser | | TCP | 19132 | game | 19132 |
| css-ds | | TCP/UDP | 27015 | game | |
| hblink | | TCP | 54000 | comm | |
| hbmon websocket | | TCP | 54000 | comm | |
| exo ssh | exo | TCP | 4041 | exovps | 22 |
| exo extra | exo | TCP | 4040 | exovps | 4040 |
| yero ssh | yero | TCP | 1511 | yeroyps | 22 |
| yero mc | yero | TCP | 25569 | yeroyps | 25565 |
| yero panel | yero | TCP | 24444 | yeroyps | 24444 |

IPv6 port rules

| Service | Customer | IPProto | Dest Host | Dest Port |
|--------------------|----------|---------|-------------|-----------|
| DNS NS1 | | TCP/UDP | misc | 53 |
| Web | | TCP | web | 80,443 |
| NNTP | | TCP | misc | 119 |
| iperf3 | | TCP | misc | 5201 |
| Git | | TCP | 9418 | web |
| bittorrent | | TCP/UDP | 8999 | nas |
| rsync | | TCP/UDP | 873 | nas |
| IRC | | TCP | 6667 | comm |
| IRCS | | TCP | 6697 | comm |
| XMPP c2s | | TCP | 5222 | comm |
| XMPP s2s | | TCP | 5269 | comm |
| TURN STUN | | TCP/UDP | 3478 | comm |
| TURN | | TCP/UDP | 5349 | comm |
| TURN UDP relay | | TCP/UDP | 49152-50176 | comm |
| mc-waterfall-proxy | | TCP | 25565 | game |
| exo-ssh | exo | TCP | 4041 | exovps |
| exo-extra | exo | TCP | 4040 | exovps |
| yero-ssh | yero | TCP | 1511 | yeroyps |
| yero-sql | yero | TCP | 1512 | yeroyps |
| FiveM SuperioresRP | yero | TCP/UDP | 30120,40120 | yeroyps |

Hosts

- server - DELL PowerEdge R720 running Proxmox PVE - ...
- mail - IONOS VPS running Debian 12 - 5.250.186.185 2001:ba0:210:d600::1
- dark - HostMeNow VPS running Debian 12 - 92.60.77.4

Management

- OPNSense router DMZ.1
- DELL switch DMZ.2
- TP-Link WAP LAN.2
- Proxmox hypervisor DMZ.4
- DELL server iDRAC DMZ.5
- HP printer DMZ.7
- Linksys ATA DMZ.18

server VMs and services

server runs Proxmox PVE.

All VMs are Debian 12 (templated) with wazuh agent

proxmox DMZ.4 (hypervisor)

- SSH
- Proxmox management interface :8006
- smartmon + node exporter :9100
- sensor exporter*
- NUT - Network UPS TOols daemon (and proper UPS)*

router DMZ.1

- (routing/firewalling)
- SSH
- DHCP
- unbound DNS
- OpenVPN
- WireGuard
- IPsec
- ntopng :3000
- telegraf - note: editing config via webfig breaks (timeout and unbound config)

nas DMZ.6

RAID attached here (with the grey stuff) (local only)

- SSH
- NFS
- Samba SMB*
- MiniDLNA*
- FTP
- qBittorrent-nox
- jellyfin
- nginx
- mpd :8000

| vhost | webroot/proxy | Comment |
|----------------|---------------|----------------------------|
| dark.arf20.com | /d/FTPServer/ | Allow only VPS and private |

web DMZ.9

- SSH

- cerbot
- nginx (status at :8080)
- fastcgi PHP
- mariadb SQL
- nginx-prometheus-exporter :9113
- prometheus :9090
- telegraf
- influxdb :8086
- grafana :3000
 - Proxmox
 - nginx
 - iDRAC
- zabbix*
- netbox*
- fcgiwrap
- git-http-backend - git smart http server CGI
- gitd - git daemon
- cgit - web frontend for git
- phpBB - forum software
- Jekyll - blog static site generator thing
- opentracker? - bittorrent tracker*
- gophernicus - gopher server*
- photoprism - photo shit
- squid - http proxy server :3128

| vhost | webroot/proxy | Comment |
|---------------------|---|--------------|
| default | <return 418 im a teapot> | |
| default:8080 | <return nstub_status> | |
| arf20.com | /var/www/arf20.com/html/ | |
| www.arf20.com | <301 redirect arf20.com> | |
| matrix.arf20.com | http://comm.lan:8008/_matrix | |
| webmail.arf20.com | /var/www/webmail.arf20.com/html/ | SquirrelMail |
| nextcloud.arf20.com | /var/www/nextcloud.arf20.com/html/ | |
| grafana.arf20.com | http://localhost:3000 | |
| jellyfin.arf20.com | http://nas.lan:8096 | |
| git.arf20.com | /srv/git/ | |
| cgit.arf20.com | fastcgi:/usr/lib/cgi/cgit.cgi | |
| blog.arf20.com | /var/www/blog.arf20.com/_site/ | |
| forum.arf20.com | /var/www/forum.arf20.com/html/ | |
| deb.arf20.com | /d/FTPServer/software/debian/ | |
| memes.arf20.com | /var/www/memes.arf20.com/, /d/FTPserver/{dcimg, dcmemes, explosionsandfire} | |
| news.arf20.com | Web-News NNTP newsgroups frontend | |
| dash.arf20.com | /var/www/dash.arf20.com/html/ | CSTIMS |
| ftp.arf20.com | /d/FTPServer/public/ | |
| photo.arf20.com | [::1]:2342 | photoprism |
| radio.arf20.com | / = /var/www/radio.arf20.com/html/; /stream = nas:8000 | |
| os.arf20.com | / = /d/FTPServer/OS/ | |
| dark.arf20.com | / = /var/www/dark.arf20.com/html/ | |
| wiki.arf20.com | /usr/share/dokuwiki | |
| qbt.arf20.com | http://192.168.4.6:8085 | |

| vhost | webroot/proxy | Comment |
|--------------------|---|---------|
| radarr.arf20.com | http://192.168.4.6:7878 | |
| sonarr.arf20.com | http://192.168.4.6:8989 | |
| kanboard.arf20.com | / = /var/www/kanboard.arf20.com/html/ | |
| vw.arf20.com | http://192.168.4.10:8000 | |
| raip.arf20.com | / = /var/www/raip.arf20.com/html/status = http://comm.lan:8080 | |
| pki.arf20.com | / = /var/www/pki.arf20.com/html/download/ = http://ca.lan:80 | |
| status.yero.dev | http://yero.vps.lan:3001 | |
| panaland.arf20.com | /var/www/panaland.arf20.com/html/ | |

secure DMZ.10

- SSH
- nginx
- php-fpm8.4
- wazuh*
- vaultwarden :8000
- OpenLDAP slapd :389
- ldap-account-manager :8389

| vhost | webroot/proxy | Comment |
|-------|-------------------------------------|---------|
| :8389 | / = /usr/share/ldap-account-manager | |

game DMZ.11

- SSH
- waterfall (minecraft reverse proxy) :25565
 - mclobby (auth)
 - minepau*
- panaland mc modded :25566
- css dedicated server :27015

comm DMZ.12

- SSH
- cerbot
- unrealircd - IRC
- synapse - matrix
- postgresql - DB for synapse
- pantalaimon - encrypt matterbridge traffic to matrix
- matterbridge - bridge channels with different protocols
 - discord
 - matrix
 - irc
 - xmpp
- prosody - XMPP
- coturn - TURN server for matrix and xmpp
- asterisk - VoIP SIP PBX
- hblink :54000
- hbmon :8080 :9000 websocket

Dialplan

- 1xxx -> users
- 2xxx -> services
- 8xxxxxxx -> tandmx
- 733xxxx -> SDF
- 0119xxxxxxx -> uwutel
- xxxxxx -> regional PSTN
- xxxxxxxx -> national PSTN
- 00x! -> international PSTN

| number | description |
|--------|--------------------|
| 2000 | IVR |
| 2001 | conference |
| 2002 | time |
| 2003 | voicemail |
| 2100 | test hello world |
| 2101 | test digits 10 |
| 2102 | test echo |
| 1000 | alias for operator |
| 1001 | Site A ATA p1 |
| 1002 | Site A ATA p2 |
| 1011 | Site B ATA p1 |
| 1012 | Site B ATA p2 |
| 1021 | soft phone 1 |
| 1022 | soft phone 2 |
| 1031 | remote phone 1 |
| 1032 | remote phone 2 |
| 1051 | cisco 3911 1 |
| 1101 | cisco 7941 |

misc (Deb12 LXC) DMZ.13

- SSH
- iperf3
- bind9 - master authoritative nameserver for arf20.com zone NS1
 - public recursive*
- INN2 - NNTP USENET server with SDF peering
- Discord servers
 - gDebrid (gookie)
- squid - HTTP proxy
- microsocks - SOCKS5 proxy

t2 (T/2 SDE build box) DMZ.15

pubnix (OpenBSD 7.5) DMZ.16

- SSH

cucm (Cisco Unified Communications Manager) DMZ.19

callbox DMZ.20

- Amarisoft Callbox

dn42 DMZ.21

- (ip forward)
- wireguard
- bird eBGP daemon
- bind9 master arfnet.dn42

| peer | asn | bgp |
|------------|------------|-------------|
| prefixlabs | 4242421240 | fe80::1240 |
| routedbits | 4242420207 | fe80::207 |
| lezi | 4242423377 | fe80::3377 |
| carlos | 4242420034 | 172.23.34.1 |
| exo | 4242421112 | fe80::dead |

dn42-services DMZ.23

- bind9 slave
- nginx reverse proxy

| vhost | webroot/proxy | comment

arfnet.dn42 | http://192.168.4.9 | ARFNET in DN42

open5gs DMZ.22

Remote gNodeB

- Open5GC
- Kamailio
- OAI?

arfnet2-ca DMZ.24 Debian 12 CT

Certificate Authority PKI

- clca
- OpenXPKI
 - serverd
 - clientd
- apache2 :80

mail (ARFNET-IONOS VPS) 5.250.186.185 2001:ba0:210:d600::1

- SSH
- certbot
- postfix - MTA smtpd, submission, submissions config
- dovecot - imapd
- opendkim
- opendmarc
- bind9 - slave authoritative nameserver NS2
- mlmmj - mailing list manager
 - installed to /usr/local/bin/mlmmj-webarchiver.sh and /etc/mlmmj-webarchiver
- mlmmj-webarchiver - mailing list archiver

| vhost | webroot/proxy | Comment |
|-----------------|---|---------------|
| default | <return 418 im a teapot> | |
| lists.arf20.com | / = /var/www/lists.arf20.com/html/ /archive = /srv/www/htdocs/archive/ | Mailing lists |

proxy (ARFNET-HOSTMENOW VPS) 92.60.77.4

- SSH
- IPsec tunnel
- nginx reverse proxy to nas

| vhost | webroot/proxy | Comment |
|-----------------------|--------------------------|---------|
| default | <return 418 im a teapot> | |
| jokesondmca.moood.com | http://nas/ | Stuff |

yero-debian VPS DMZ.192 (yero)

- SSH
- mariadb
- FiveM SuperioresRP

exo-debian VPS DMZ.195 (exo)

- SSH
- netbox

loofa-debian VPS DMZ.196 (loofa)

- SSH
- ?

*TODO

Internal Name and Number Assignment Table

DMZ IPv4s and IPv6 ends in the same way

| Addr | Name | Description |
|--------|-------------|-----------------------------------|
| DMZ.1 | router.lan | OPNSense managent |
| DMZ.2 | switch.lan | DELL PowerConnect 5424 management |
| DMZ.3 | wap.lan | TP-Link Omada AP255 |
| DMZ.4 | proxmox.lan | Proxmox VE management |
| DMZ.5 | idrac.lan | DELL R720 iDRAC7 management |
| DMZ.6 | nas.lan | |
| DMZ.7 | printer.lan | HP Officejet 8020 |
| DMZ.8 | desktop.lan | reserved for desktop on DMZ |
| DMZ.9 | web.lan | |
| DMZ.10 | secure.lan | |
| DMZ.11 | game.lan | |
| DMZ.12 | comm.lan | |
| DMZ.13 | misc.lan | |

| Addr | Name | Description |
|---------|-------------------|-----------------------|
| DMZ.15 | (t2) | T/2 SDE build box |
| DMZ.16 | pubnix | |
| DMZ.17 | [reserved] | for future raspi |
| DMZ.18 | ata.lan | Linksys ATA |
| DMZ.19 | cucmelan | Cisco CallManager |
| DMZ.20 | callbox.lan | 5G gNodeB |
| DMZ.21 | dn42.lan | DN42 edge router |
| DMZ.22 | open5gs.lan | Open5GS 5G core |
| DMZ.23 | dn42-services.lan | DN42 service machine |
| DMZ.24 | ca.lan | Certificate Authority |
| DMZ.192 | yero-debian | yero.lan |
| DMZ.195 | exo-debian | exo.lan |
| DMZ.196 | loofa-debian | loofa.lan |

Site-B:PiSoNet

| Addr | Name | Description |
|-------|------|------------------------------|
| PSN.1 | | Huawei CPE Combo Box |
| PSN.2 | | DELL switch on untagged |
| PSN.3 | | Mikrotik firewall downstream |
| PSN.4 | | Grandstream ATA |
| PSN.8 | | desktop (when applies) |

DNS

Public domain zone

| Name | Type | Content | Comment |
|----------------|------|----------------------|--------------|
| @ | NS | ns1.arf20.com | |
| @ | NS | ns2.arf20.com | |
| ns1 | A | 2.59.235.35 | |
| ns1 | AAAA | 2600:70ff:f039:4::13 | |
| ns2 | A | 5.250.186.185 | |
| ns2 | AAAA | 2001:ba0:210:d600::1 | |
| arf20.com | A | 2.59.235.35 | |
| arf20.com | AAAA | 2600:70ff:f039:4::9 | |
| mail.arf20.com | A | 5.250.186.185 | ARFNET-IONOS |
| mail.arf20.com | AAAA | 2001:ba0:210:d600::1 | ARFNET-IONOS |
| web.arf20.com | A | 2.59.235.35 | |
| web.arf20.com | AAAA | | |
| game.arf20.com | A | 2.59.235.35 | |
| game.arf20.com | AAAA | 2600:70ff:f039:4::11 | |
| comm.arf20.com | A | 2.59.235.35 | |
| comm.arf20.com | AAAA | 2600:70ff:f039:4::12 | |
| misc.arf20.com | A | 2.59.235.35 | |
| misc.arf20.com | AAAA | 2600:70ff:f039:4::13 | |

| Name | Type | Content | Comment |
|------------------------------|-------|----------------------|---------|
| pubnix.arf20.com | A | 2.59.235.35 | |
| pubnix.arf20.com | AAAA | 2600:70ff:f039:4::16 | |
| irc.arf20.com | CNAME | comm.arf20.com | |
| jellyfin.arf20.com | CNAME | web.arf20.com | |
| matrix.arf20.com | CNAME | web.arf20.com | |
| nextcloud.arf20.com | CNAME | web.arf20.com | |
| turn.arf20.com | CNAME | comm.arf20.com | |
| webmail.arf20.com | CNAME | web.arf20.com | |
| www.arf20.com | CNAME | web.arf20.com | |
| xmpp.arf20.com | CNAME | comm.arf20.com | |
| xmppconf.arf20.com | CNAME | comm.arf20.com | |
| grafana.arf20.com | CNAME | web.arf20.com | |
| git.arf20.com | CNAME | web.arf20.com | |
| cgit.arf20.com | CNAME | web.arf20.com | |
| blog.arf20.com | CNAME | web.arf20.com | |
| forum.arf20.com | CNAME | web.arf20.com | |
| deb.arf20.com | CNAME | web.arf20.com | |
| zabbix.arf20.com | CNAME | web.arf20.com | |
| memes.arf20.com | CNAME | web.arf20.com | |
| news.arf20.com | CNAME | misc.arf20.com | |
| dash.arf20.com | CNAME | web.arf20.com | |
| ftp.arf20.com | CNAME | web.arf20.com | |
| photo.arf20.com | CNAME | web.arf20.com | |
| radio.arf20.com | CNAME | web.arf20.com | |
| os.arf20.com | CNAME | web.arf20.com | |
| tel.arf20.com | CNAME | comm.arf20.com | |
| netbox.arf20.com | CNAME | web.arf20.com | |
| dark.arf20.com | CNAME | web.arf20.com | |
| wiki.arf20.com | CNAME | web.arf20.com | |
| qbt.arf20.com | CNAME | web.arf20.com | |
| radarr.arf20.com | CNAME | web.arf20.com | |
| sonarr.arf20.com | CNAME | web.arf20.com | |
| kanboard.arf20.com | CNAME | web.arf20.com | |
| vw.arf20.com | CNAME | web.arf20.com | |
| raip.arf20.com | CNAME | web.arf20.com | |
| dmr.arf20.com | CNAME | comm.arf20.com | |
| pki.arf20.com | CNAME | web.arf20.com | |
| status.arf20.com | CNAME | mail.arf20.com | |
| lists.arf20.com | CNAME | mail.arf20.com | |
| mlmmj.arf20.com | CNAME | mail.arf20.com | |
| lahomosexualidadde.arf20.com | CNAME | weonpollo.xyz | |
| panaland.arf20.com | CNAME | web.arf20.com | |
| _acme-challenge.jellyfin | CNAME | (challenge) | |
| _acme-challenge.irc | CNAME | (challenge) | |
| _acme-challenge.matrix | CNAME | (challenge) | |
| _acme-challenge.mail | CNAME | (challenge) | |
| _acme-challenge.xmpp | CNAME | (challenge) | |

| Name | Type | Content | Comment |
|---------------------|------|----------------|------------------------------|
| arf20.com | MX | mail.arf20.com | |
| selector._domainkey | TXT | (DKIM) | DKIM for selector 'selector' |
| _dmarc | TXT | (DMARC) | |
| arf20.com | TXT | (SPF) | |

HE v6 rDNS zone

| Name | Type | Content | Comment |
|-----------------------|------|-----------------|---------|
| 2600:70ff:f039:4::13 | PTR | ns1.arf20.com | |
| 2600:70ff:f039:4::9 | PTR | arf20.com | |
| 2600:70ff:f039:4::195 | PTR | global.dns.navy | |

IONOS rDNS zone

| Name | Type | Content | Comment |
|---------------|------|----------------|---------|
| 5.250.186.185 | PTR | mail.arf20.com | |

Custom ARFNET software

- cstims: client, service, ticket and invoice management system
- lists: mailing list browser
- status: status monitor