A full node for every Alice

By Nicolas Dorier

Main maintainer of NBitcoin and BTCPay

.NET fanboy
Foreword

- No ICO
- Not a company
- No funding
- Need Open Source developers, not money
- BTCPay is started as a reaction to B2X
- BTCPay is not about merchants
Why full nodes are important?

• No third party bullshit (KYC/AML, surprise account freeze)
• No hostage situation (Central parties trying to redefine Bitcoin)
• Unleashing the programmable money
Why Alice does not run a full node?

• Can receive money on her mobile wallet just fine
• Do not care about decentralization, until it is too late
• Can use Trezor/Ledger desktop apps just fine
• Bitcoin QT always need to sync when she need to use it
How to make the dog to eat a medicine?
What kind of wallet exists?
Mobile wallet using Block explorer

- Bad privacy
Mobile wallet using Bloom filters

- Terrible privacy
- Bad User Experience
Mobile wallet using Bloom filters

• Mediocre User Experience (Sync needed)
Wallet with full node on phone

- Bad User Experience
- Resource consuming (Storage, Bandwidth, Power)
And for lightning?

- Same Layer 1 tradeoffs
- + Layer 2 tradeoffs
- Unable to reliably receive payments
- Need occasional connectivity
Time to stop trying to fit round shape into square holes…

What if having an always connected bitcoin server was easier and cheaper than paying for a Netflix subscription?
• A mobile app have good UX but is occasionally connected

• Hosting a Server has bad UX but is always connected
Lot’s of great tooling in Bitcoin, but those are difficult to integrate together if you are not a coder.
MAN, DOCKER IS BEING USED FOR EVERYTHING.
I DON'T KNOW HOW I FEEL ABOUT IT.
STORY TIME!

ONCE, LONG AGO, I WANTED TO USE AN OLD TABLET AS A WALL DISPLAY.

I HAD AN APP AND A CALENDAR WEBPAGE THAT I WANTED TO SHOW SIDE BY SIDE, BUT THE OS DIDN'T HAVE SPLIIT-SCREEN SUPPORT.
SO I DECIDED TO BUILD MY OWN APP.

I DOWNLOADED THE SDK AND THE IDE, REGISTERED AS A DEVELOPER, AND STARTED READING THE LANGUAGE'S DOCS.

...THEN I REALIZED IT WOULD BE WAY EASIER TO GET TWO SMALLER PHONES ON EBAY AND GLUE THEM TOGETHER.

BUT YOU NEVER LEARNED TO WRITE SOFTWARE.
NO, I JUST LEARNED HOW TO GLUE TOGETHER STUFF THAT I DON'T UNDERSTAND.
I...OK, FAIR.

ON THAT DAY, I ACHIEVED SOFTWARE ENLIGHTENMENT.
Docker Compose

Bitcoin Core
Postgres
NBXplorer
BTCPay
letsencrypt-nginx-proxy-companion
nginx-gen
Ecommerce + BTCPay plugins

Docker Compose

Let's Encrypt

WooCommerce

NGINX

Postgres

BTCPay

NBXplorer

Bitcoin Core
Docker Compose

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Ecommerce + BTCPay plugins

Let's Encrypt

Altcoins

Core

Bitcoin

Core

Docker Compose
Docker Compose

Bitcoin Core

Postgres

NBXplorer

BTCPay

letsencrypt-nginx-proxy-companion

nginx-gen

Ecommerce + BTCPay plugins

Altcoins Core

CLightning

Lightning Charge

LND

Zap Wallet

nginx

gen

Docker Compose

Let's Encrypt
Easy deployment with docker

1. Git clone https://github.com/btcpayserver/btcpayserver-docker
2. Setup environment variables
3. Run “./btcpay-install.sh”
Current downside:

- Can’t use Lightning on pruned node
- Docker installation on custom hosting affordable but harder (10$/mo)
- Pruned node support for lightning could bring down the cost to 5$/mo.
- Need to search for the hosts and run ./btcpay-install.sh on it
# Easy deployment with Azure

![Deploy to Azure](image)

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscription</td>
<td>AO-1S (IaaS)</td>
</tr>
<tr>
<td>Resource group</td>
<td>Create new</td>
</tr>
<tr>
<td>Location</td>
<td>West Europe</td>
</tr>
<tr>
<td>Admin Username</td>
<td>btcpayserver</td>
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<tr>
<td>Admin Password</td>
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<tr>
<td>Notification Email</td>
<td><a href="mailto:journamle@example.com">journamle@example.com</a></td>
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<tr>
<td>Vm Size</td>
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<td>Network</td>
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<td>Supported Crypto</td>
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<tr>
<td>Lightning Network</td>
<td></td>
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<tr>
<td>Lightning Node Alias</td>
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</tr>
<tr>
<td>Ubuntu OS Version</td>
<td>16.04.0-LTS</td>
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<tr>
<td>Repository</td>
<td><a href="https://github.com/btcpayserver/btcpayserver-docker">https://github.com/btcpayserver/btcpayserver-docker</a></td>
</tr>
<tr>
<td>Branch</td>
<td>master</td>
</tr>
</tbody>
</table>
Current downside:

- Azure installation easy but costly (60$/mo)
- Can go down to 20$/mo but need to mess up with Azure settings manually
- Microsoft
Tedious deployment but works on Raspberry Pi

Would need multi-arch images in docker
Reason 1 to run full node: More User friendly
Exchange integration
DLC

So you think you need fiat to hedge against bitcoin?
Do more with the services you love

- Pay for retweet (Popular for some alts ;))
Receiving money offline

Donation to Nicolas Dorier

- Fresh Dirt: Buy for $0.01
- Sushi: Buy for $10.00
- Coffee: Buy for $1.00
- Dinner for the wife: Buy for $100.00
- New laptop: Buy for $2,000.00
- Beer: Buy for $5.00
- New phone: Buy for $700.00

amount
Pay
Manage store

Manage wallet

Please validate the transaction on your ledger

You can send money received by this store to an address with the help of your Ledger Wallet. If you don't have a Ledger Wallet, use Electrum with your favorite hardware wallet to transfer crypto. If your Ledger wallet is not detected:

- Make sure you are running the Ledger app with version superior or equal to 1.2.4
- Use a browser supporting the U2F protocol

LEDGER DETECTED

This store is configured to use your ledger

Destination

1F1UaSzX1HUXjCnLB0MqGW05GmHxqX

Amount

0.00543775

Your current balance is 0.00543775 BTC.

Fee rate (satoshis per byte)

5

The recommended value is 5 satoshis per byte.

Subtract fees from amount

☑

Confirm
Making passive income

- Expose ShapeShift like endpoint for your Alts
- Expose a CoinJoin endpoint (as market maker)
- Being Lightning CENTRALIZED HUB
Reason 2 to run full node: 
Programmable money
@BtcPayServer  @NicolasDorier
@r0ckstardev

http://slack.forkbitpay.ninja

https://github.com/btcpayserver/
Thanks you!