

death to the mempool, long live the mempool

@niftynei

And how we can bring it back from irrelevance

public_inbox_for_bitcoinddev@googlegroups.com

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From: lisa neigut <niftynei@gmail.com>

To: bitcoin-dev@lists.linuxfoundation.org

Subject: [\[bitcoin-dev\] death to the mempool, long live the mempool](#)

Date: Mon, 25 Oct 2021 21:56:21 -0500 [\[thread overview\]](#)

Message-ID: <CAM1a7P04apCwwmqNp4VLRam5_uk59tVRWv74UVD_g0-DUGNghw@mail.gmail.com> ([raw](#))

[\[-- Attachment #1: Type: text/plain, Size: 2667 bytes --\]](#)

Hi all,

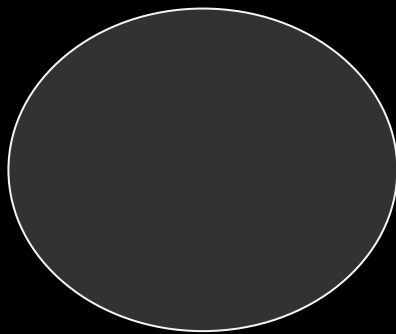
In a recent conversation with @glozow, I had the realization that the mempool is obsolete and should be eliminated.

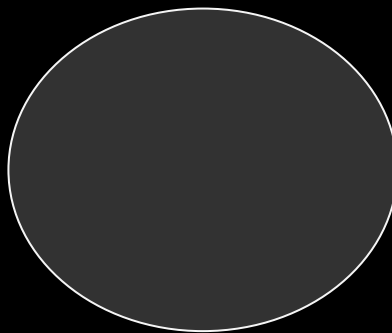
Instead, users should submit their transactions directly to mining pools, preferably over an anonymous communication network such as tor. This can easily be achieved by mining pools running a tor onion node for this express purpose (or via a lightning network extension etc)

Mempools make sense in a world where mining is done by a large number of participating nodes, eg where the block template is constructed by a majority of the participants on the network. In this case, it is necessary to socialize pending transaction data to all participants, as you don't know which participant will be constructing the winning block template.

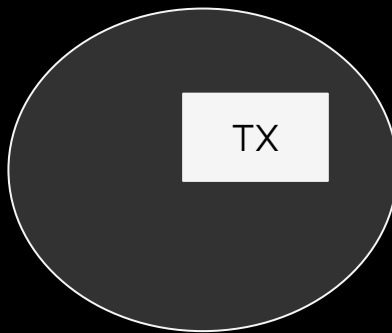
In reality however, mempool relay is unnecessary where the majority of hashpower and thus block template creation is concentrated in a semi-restricted set.

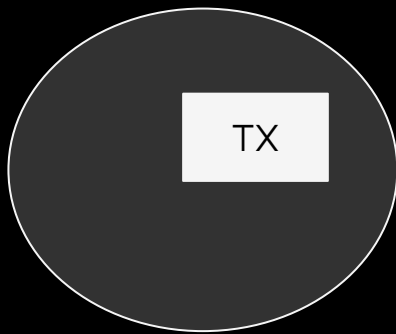
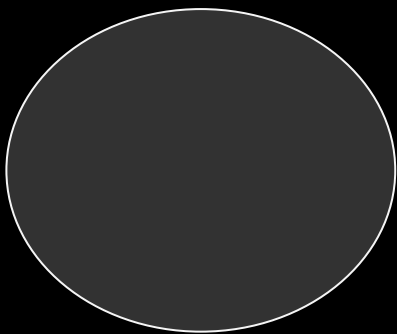
Removing the mempool would greatly reduce the bandwidth requirement for

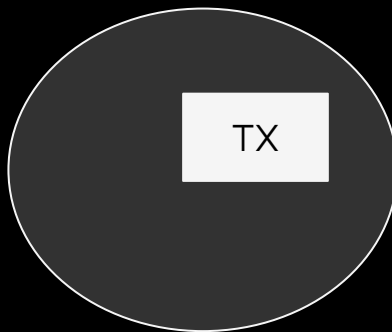
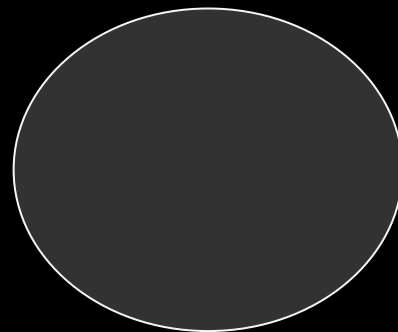
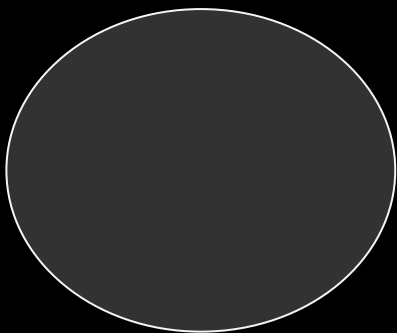


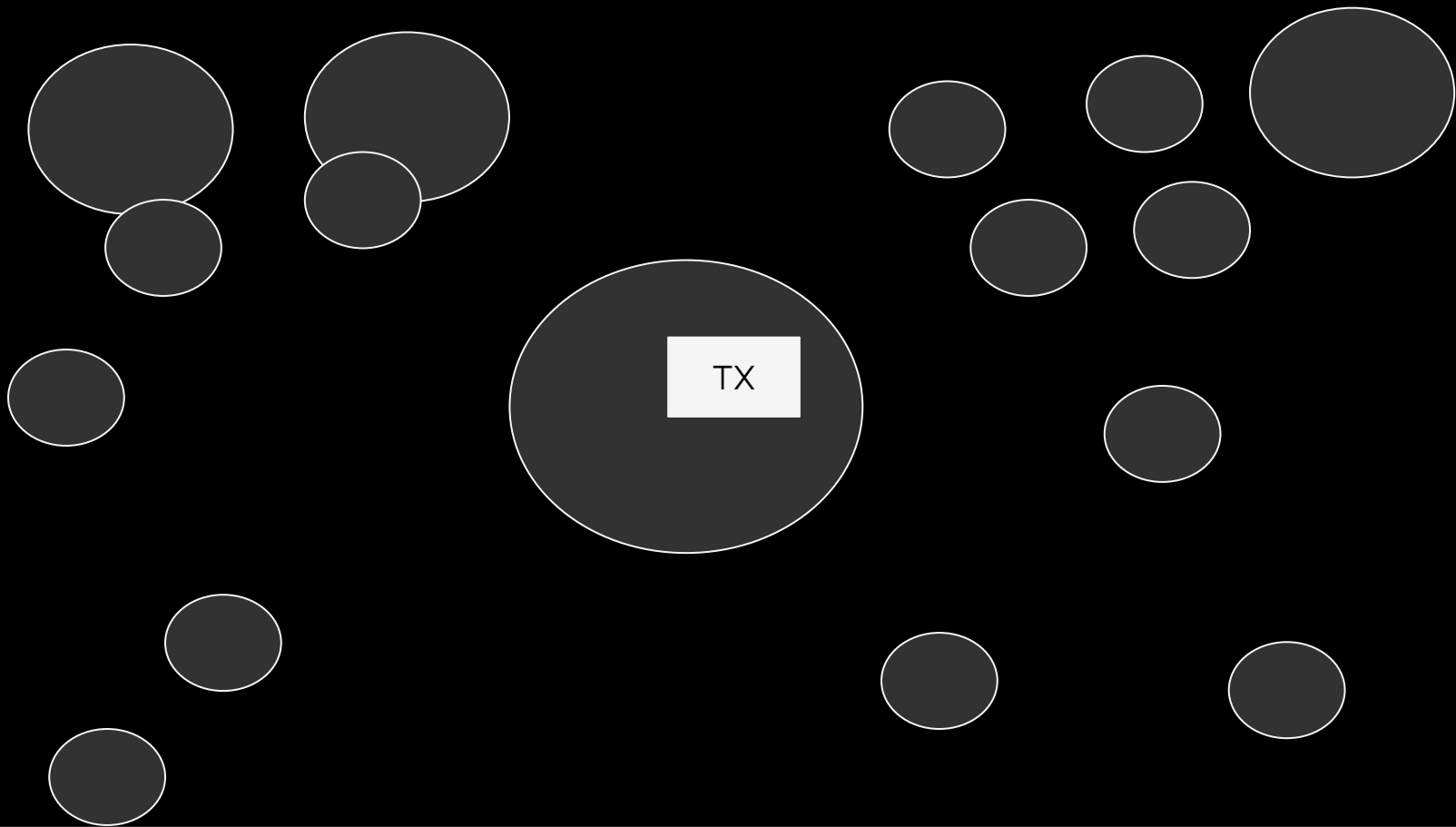


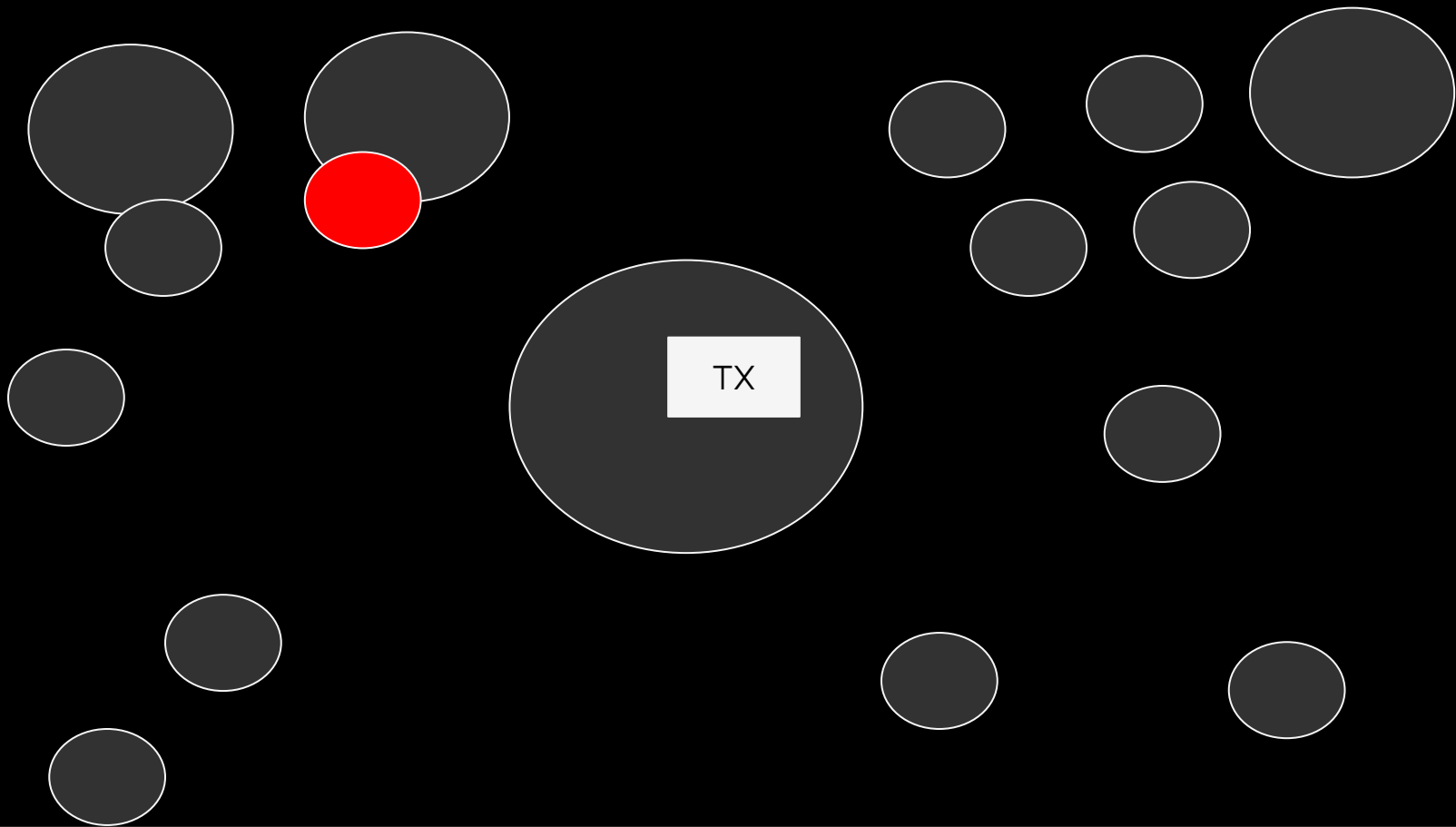
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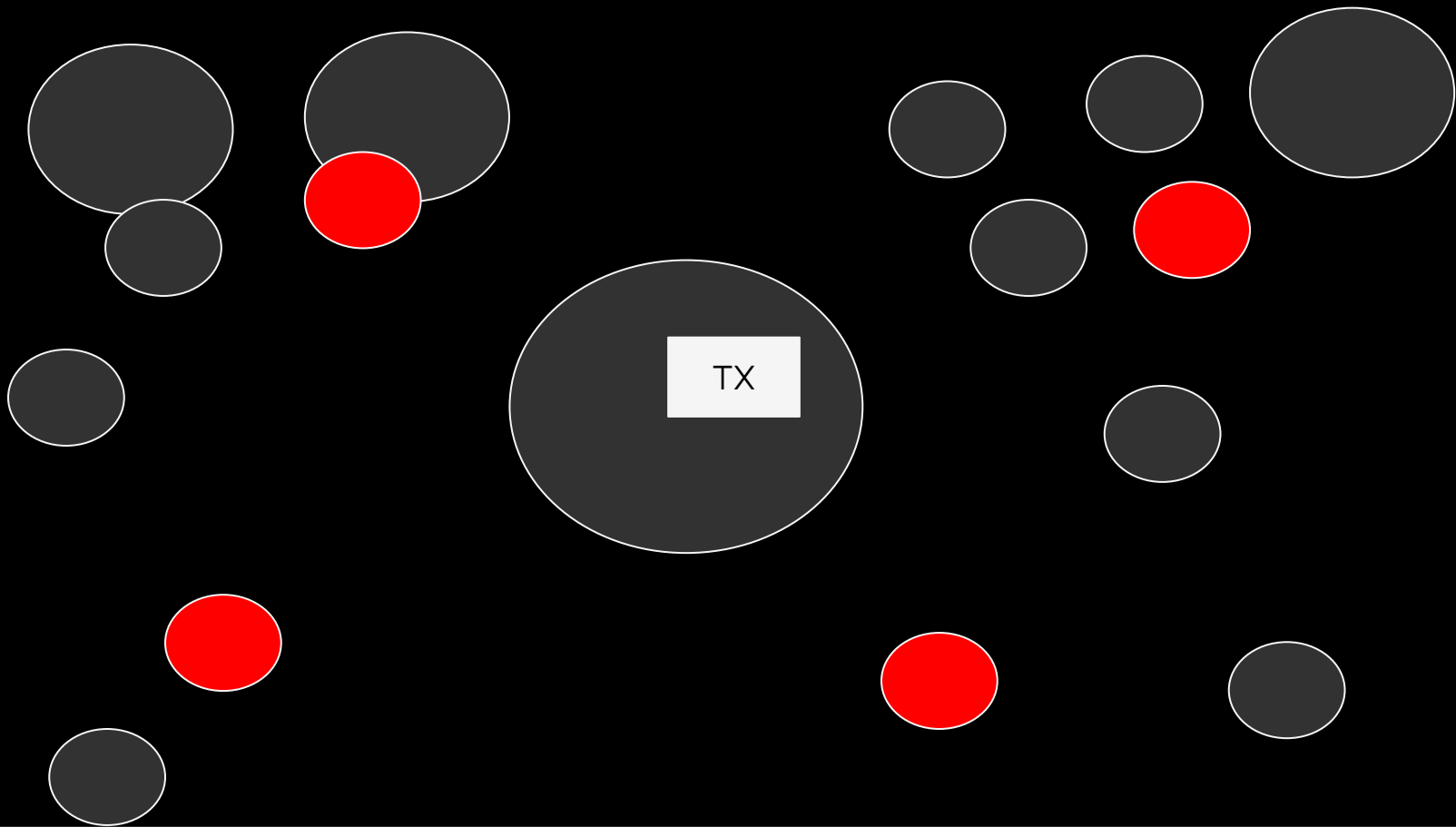


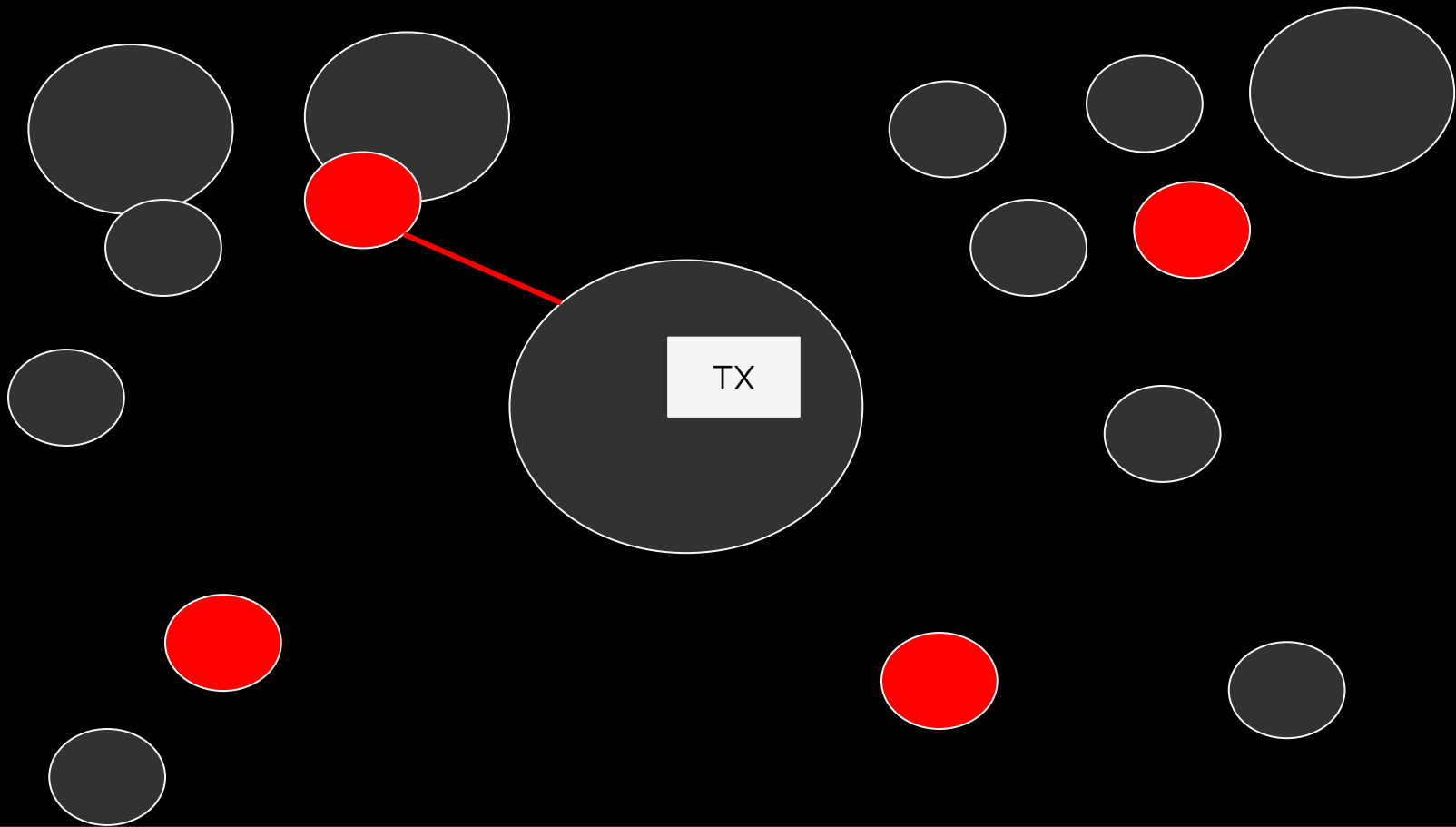


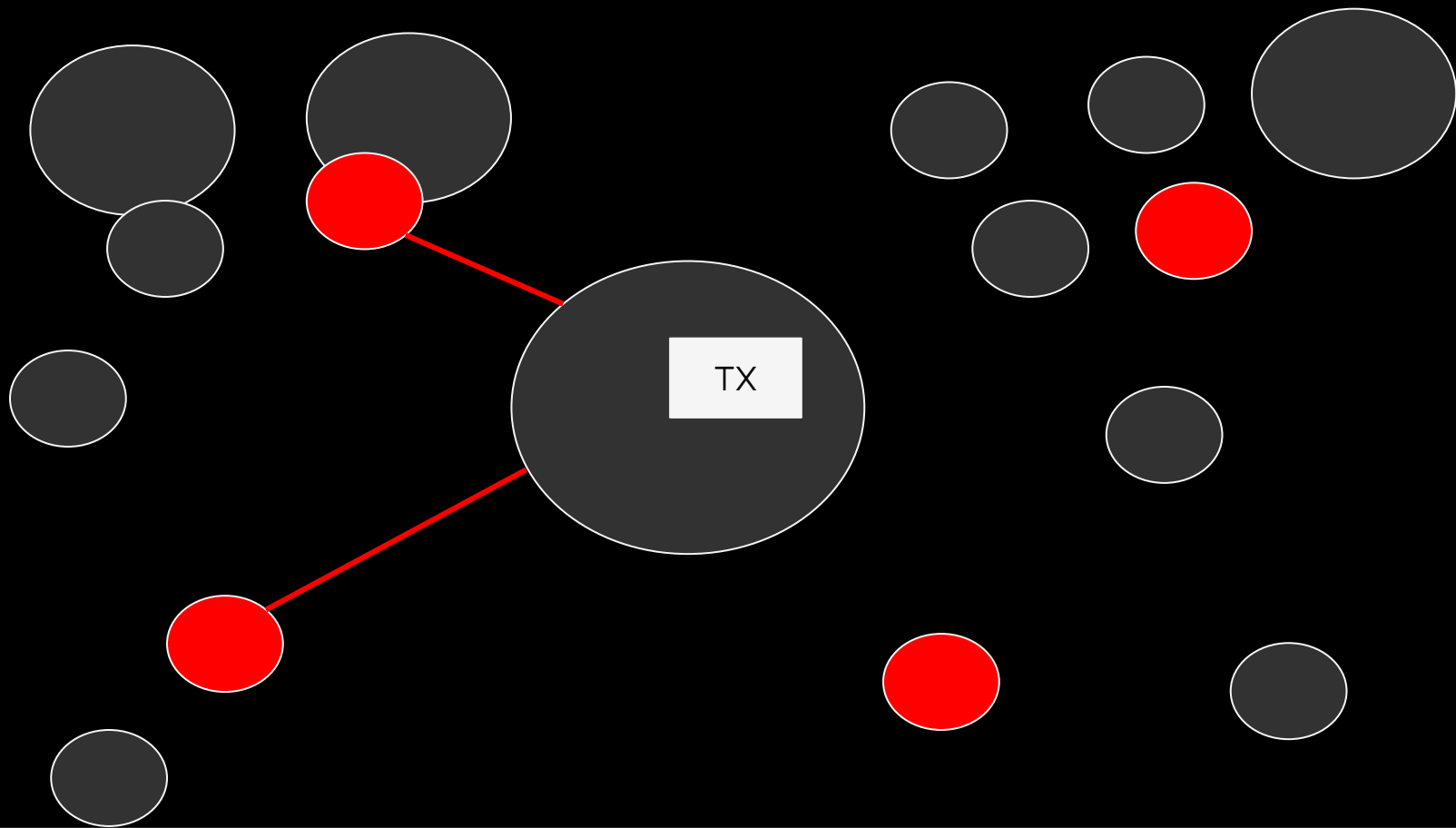


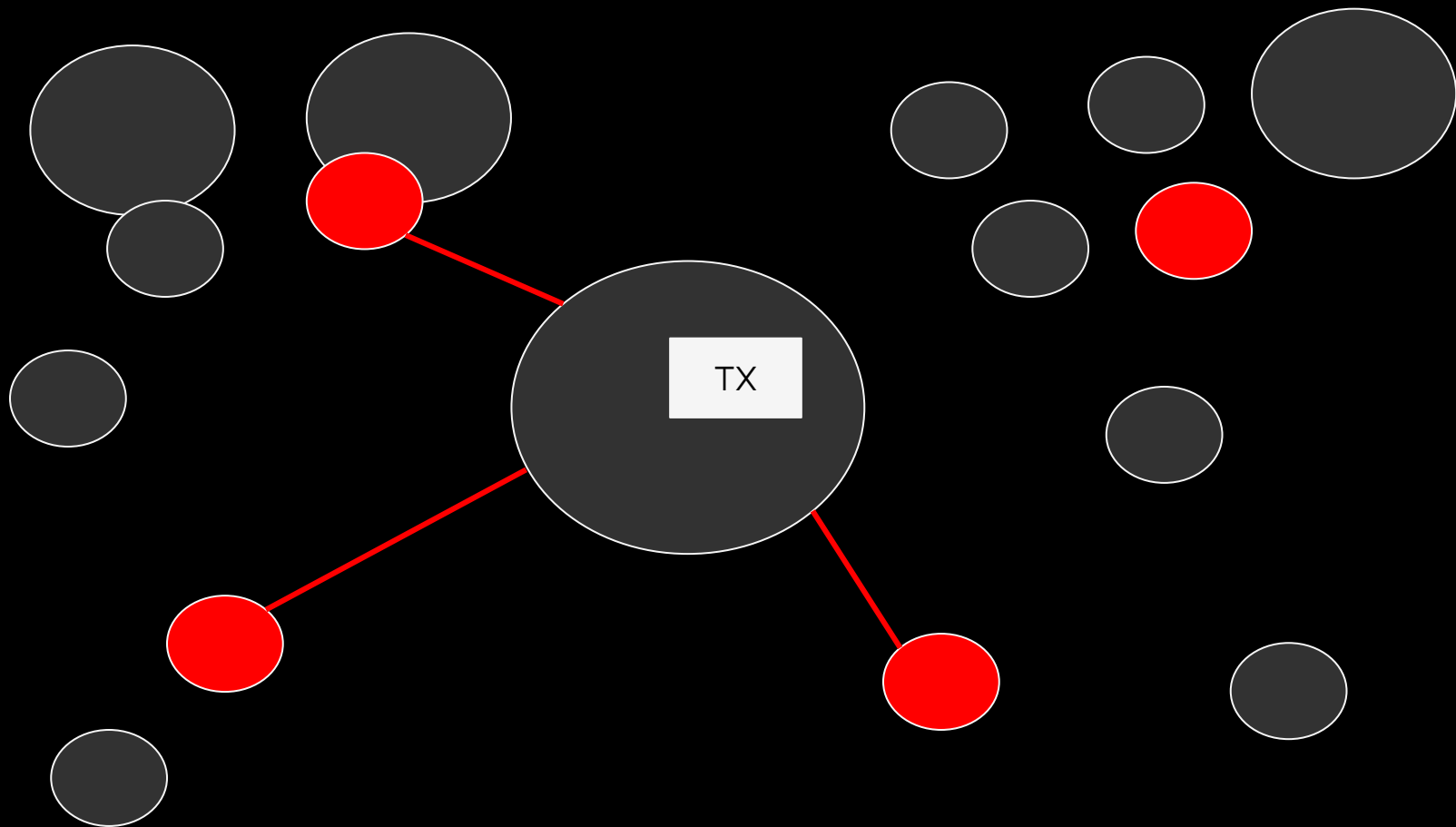


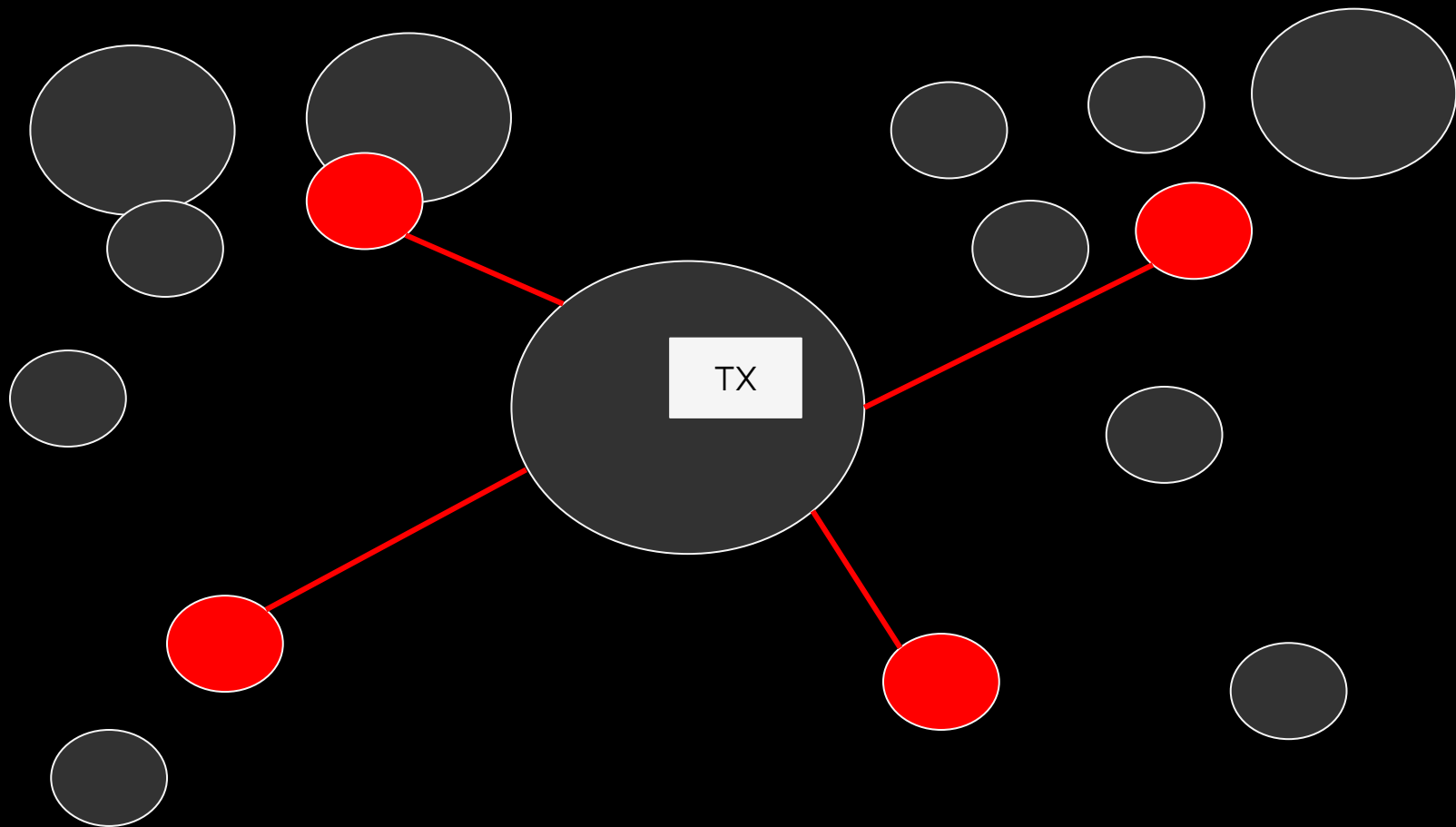


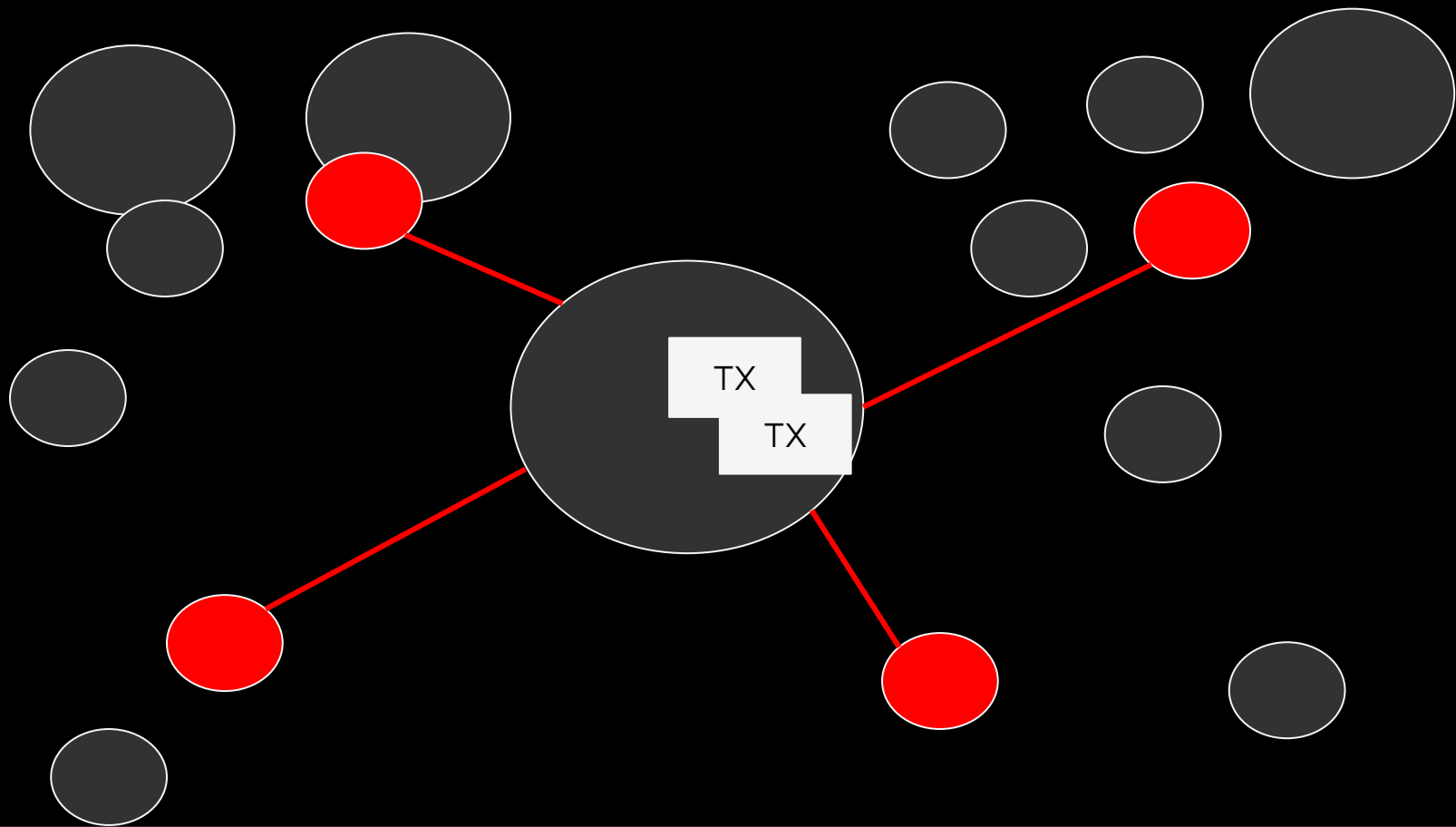


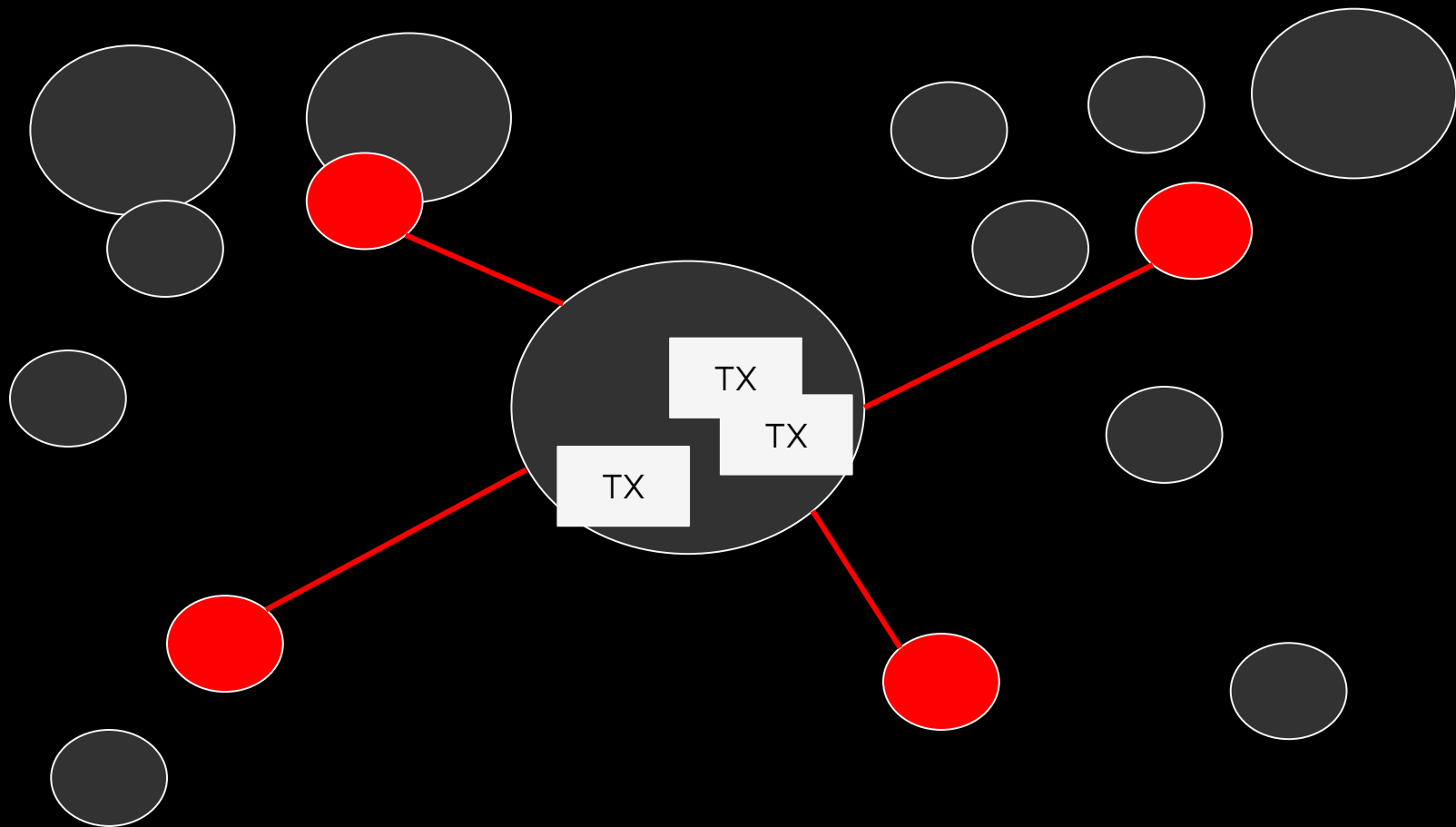


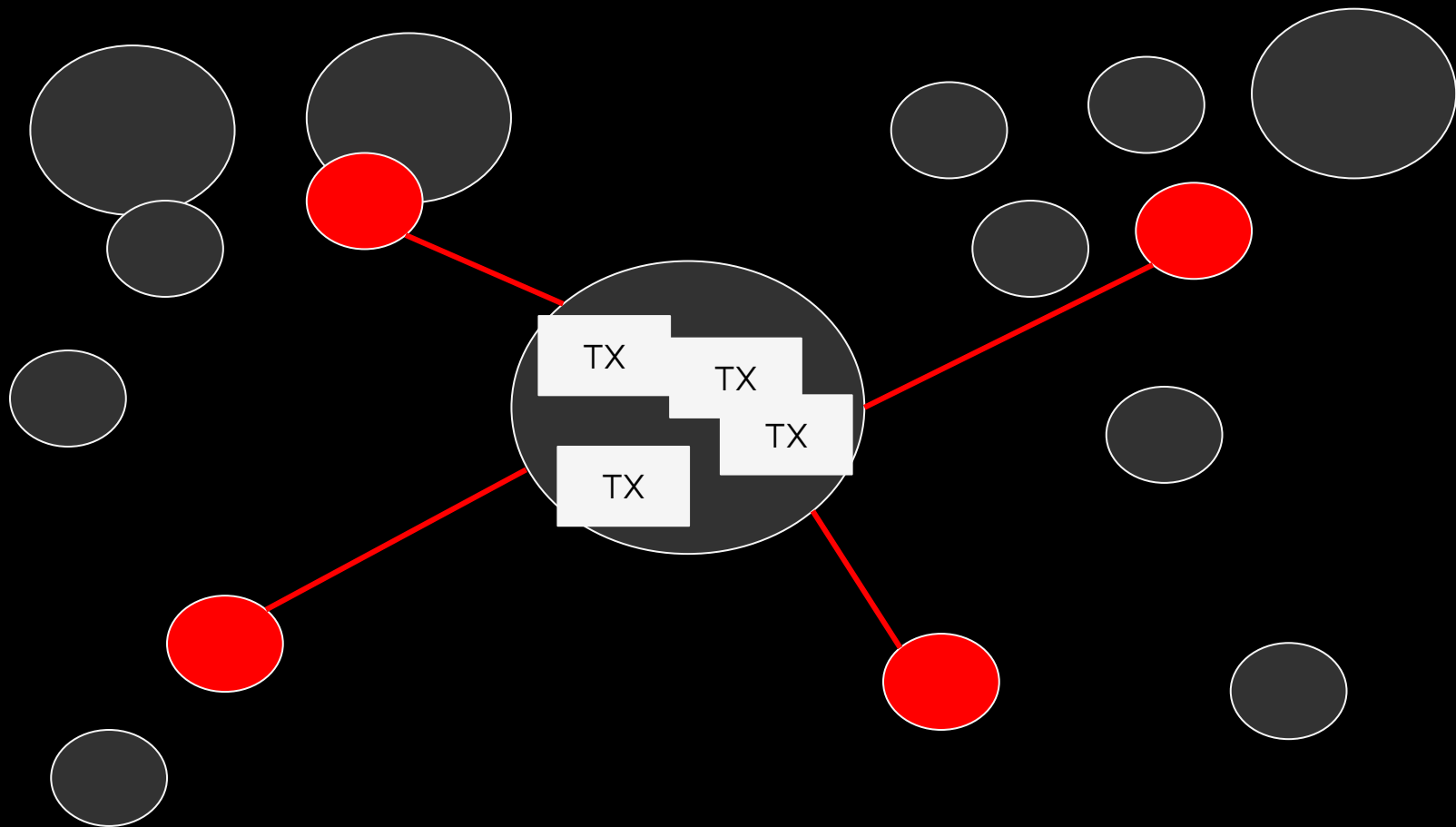


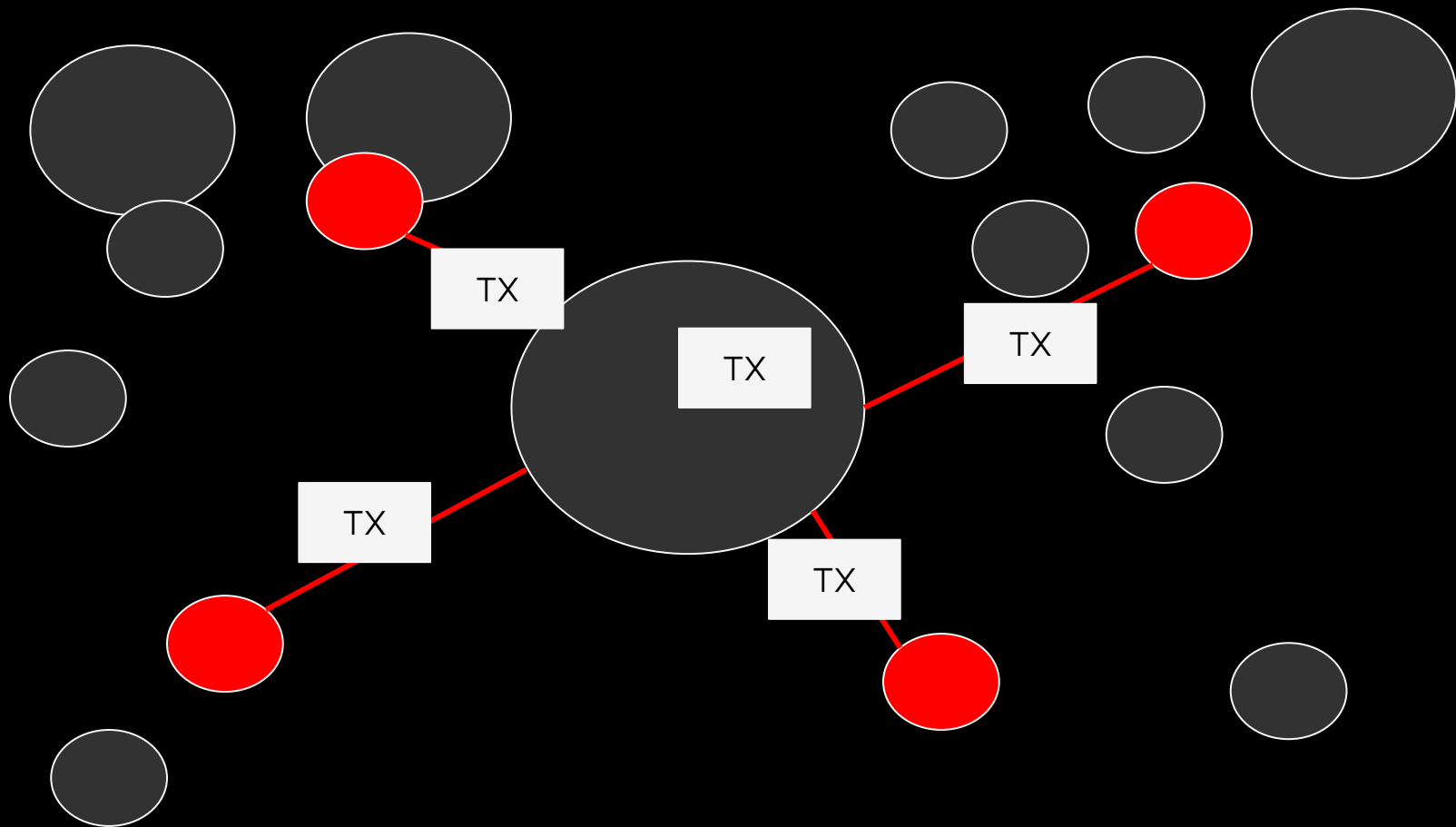


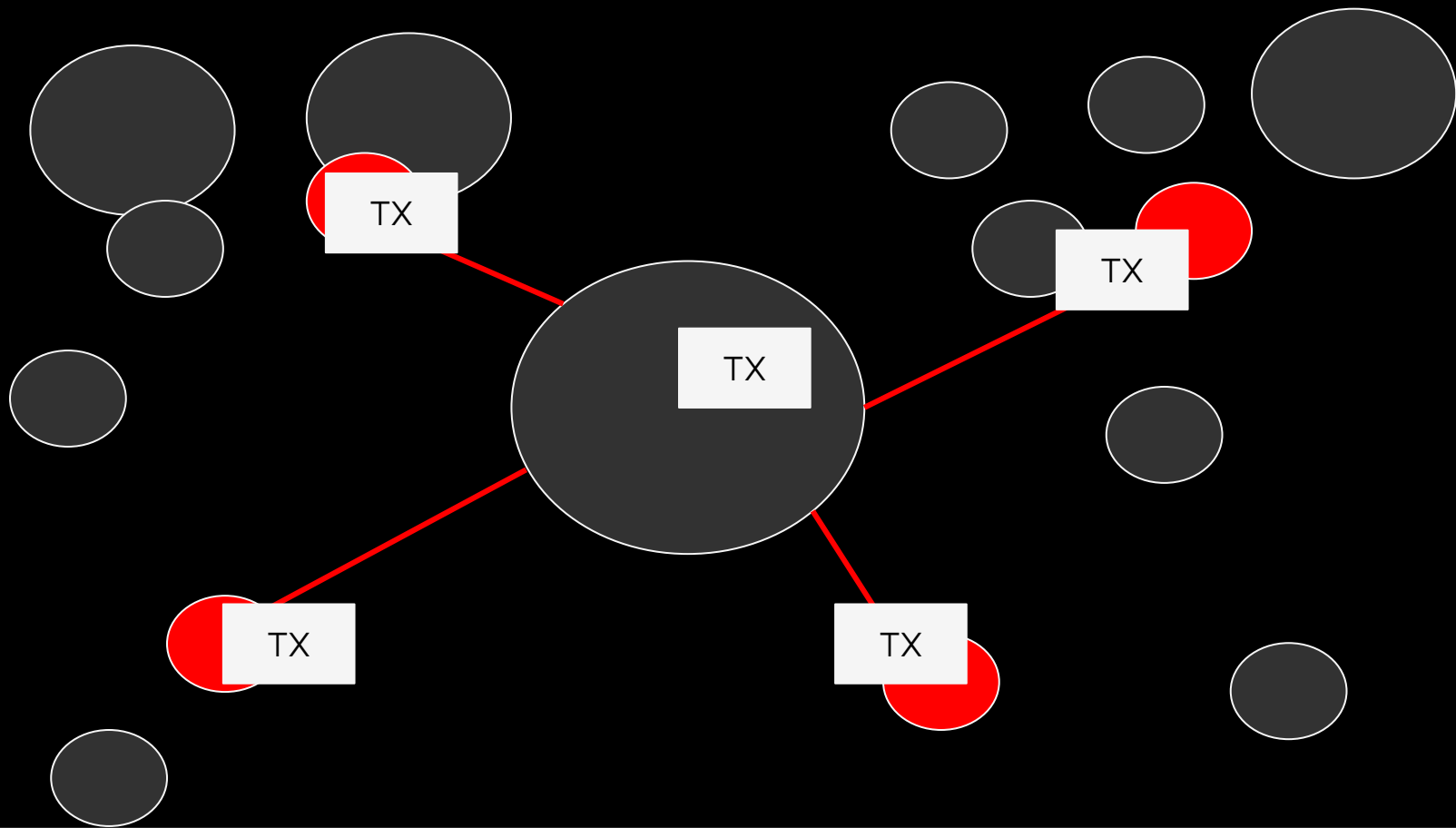


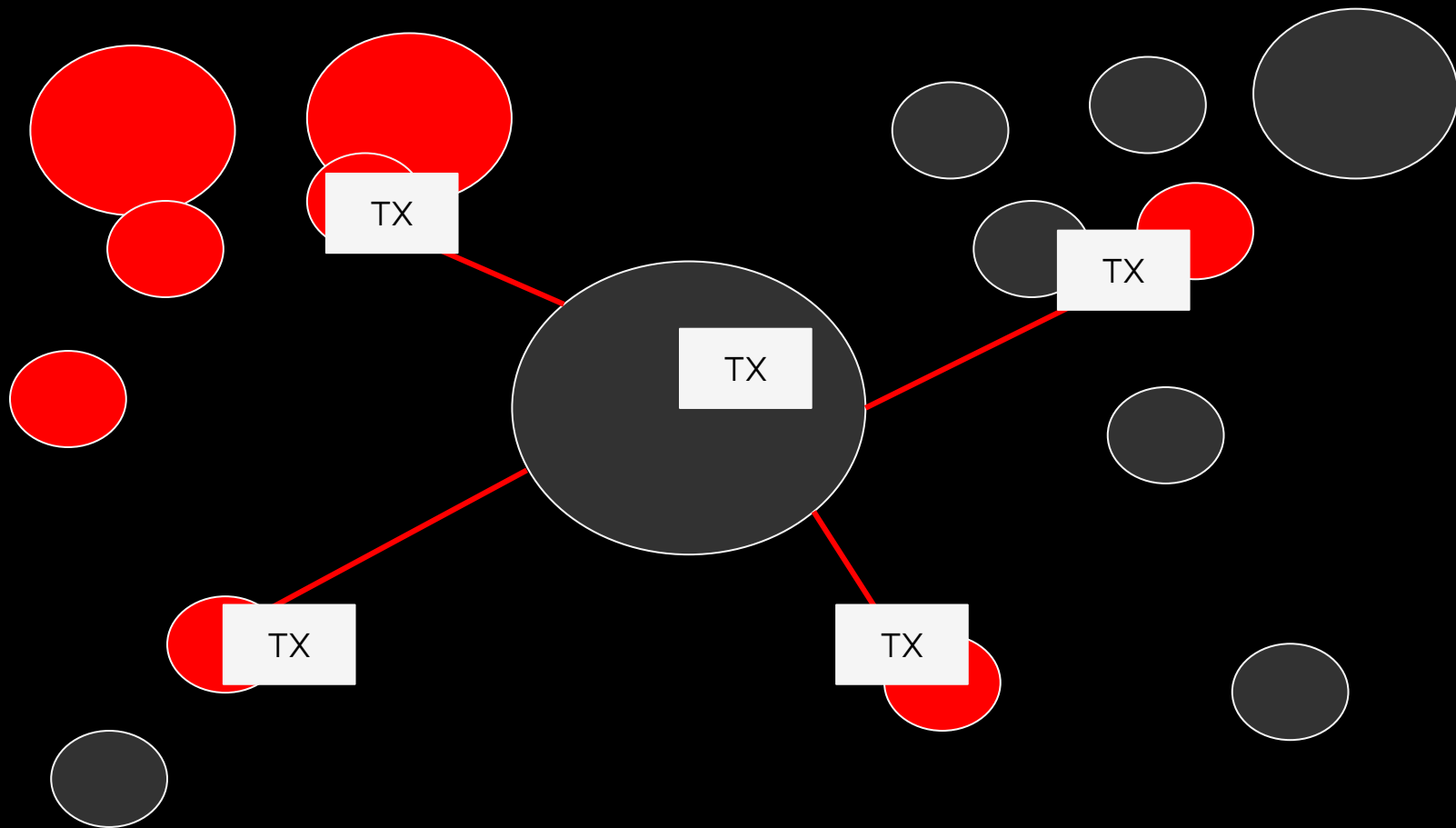


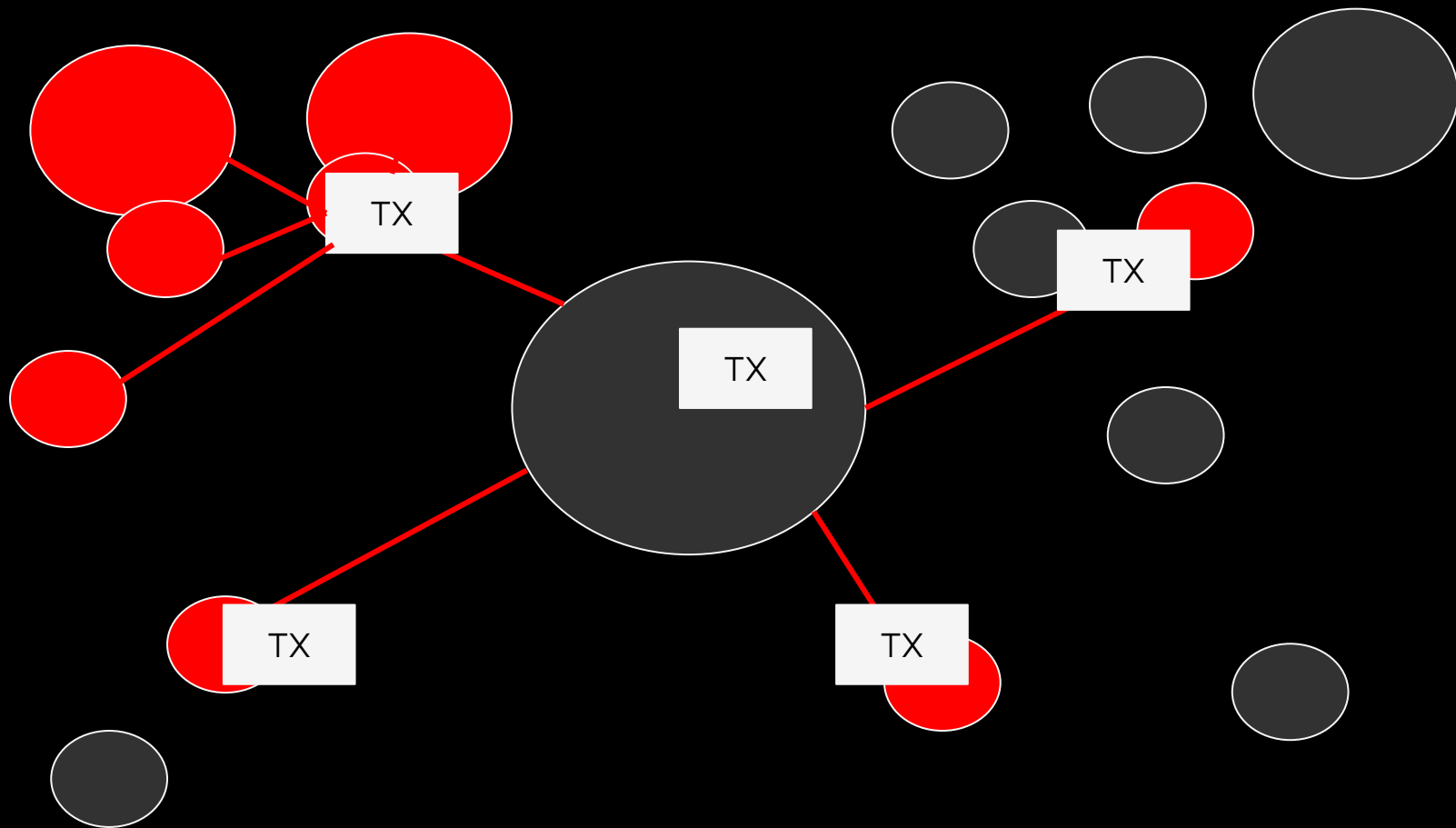


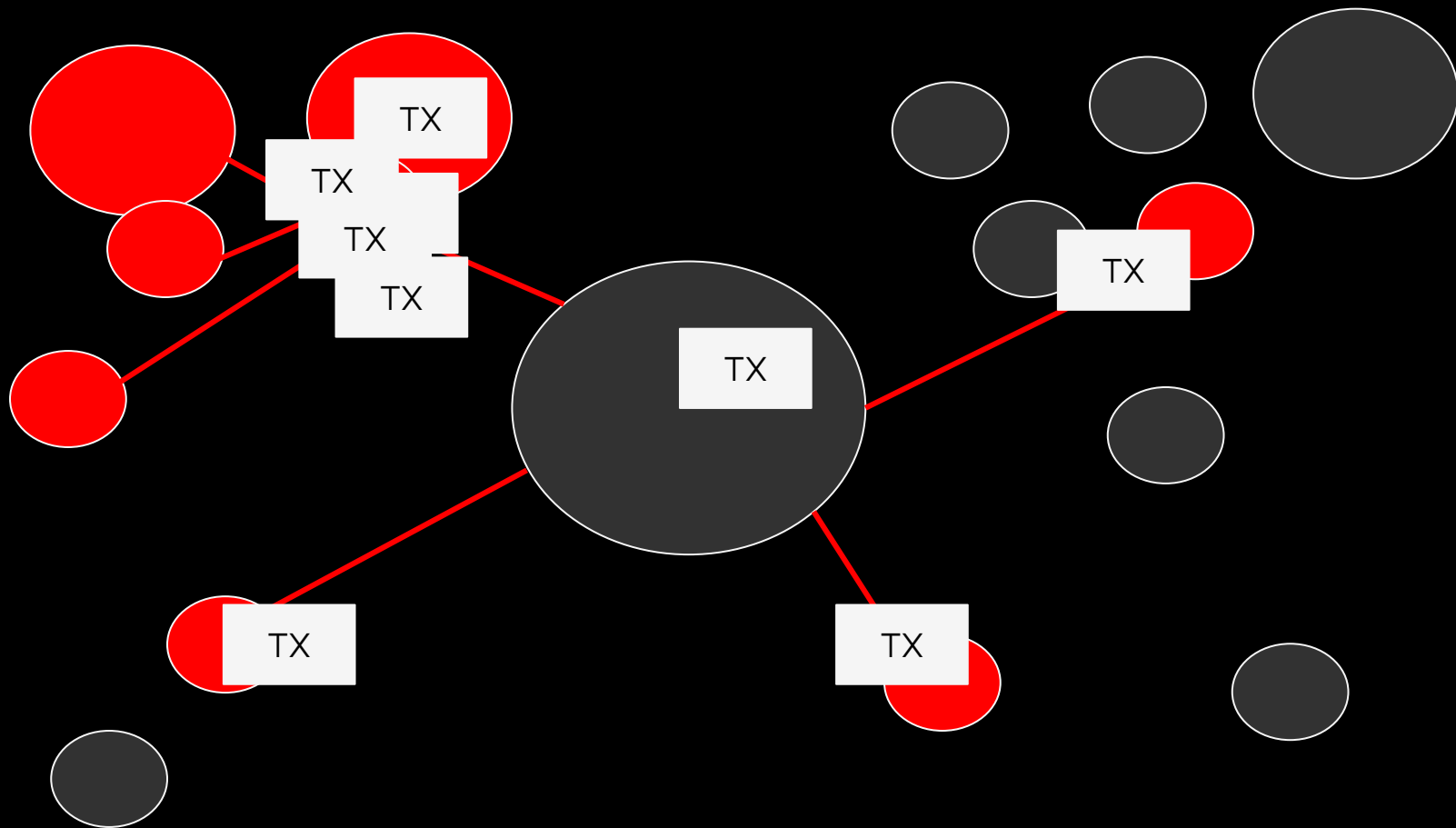




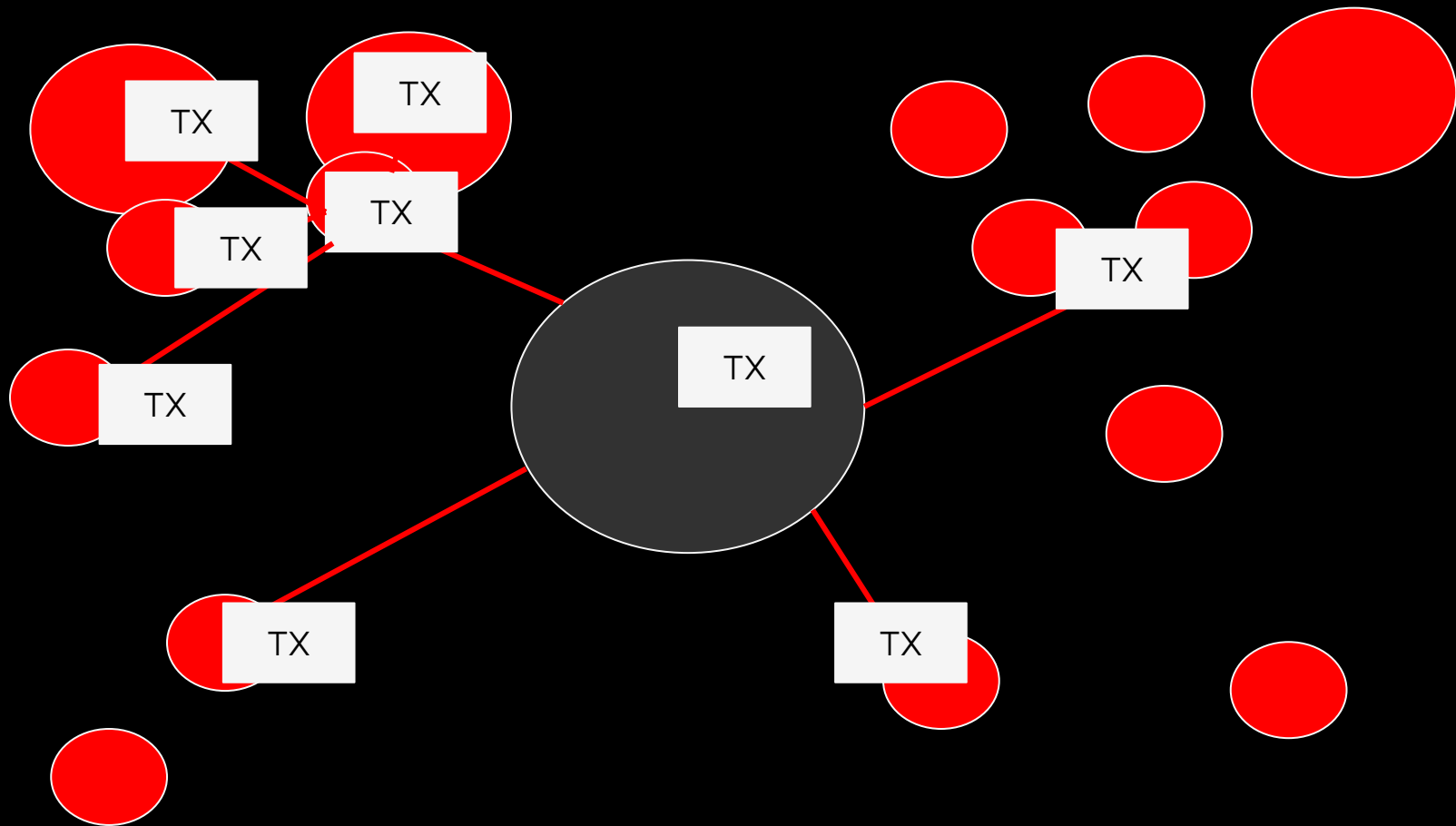


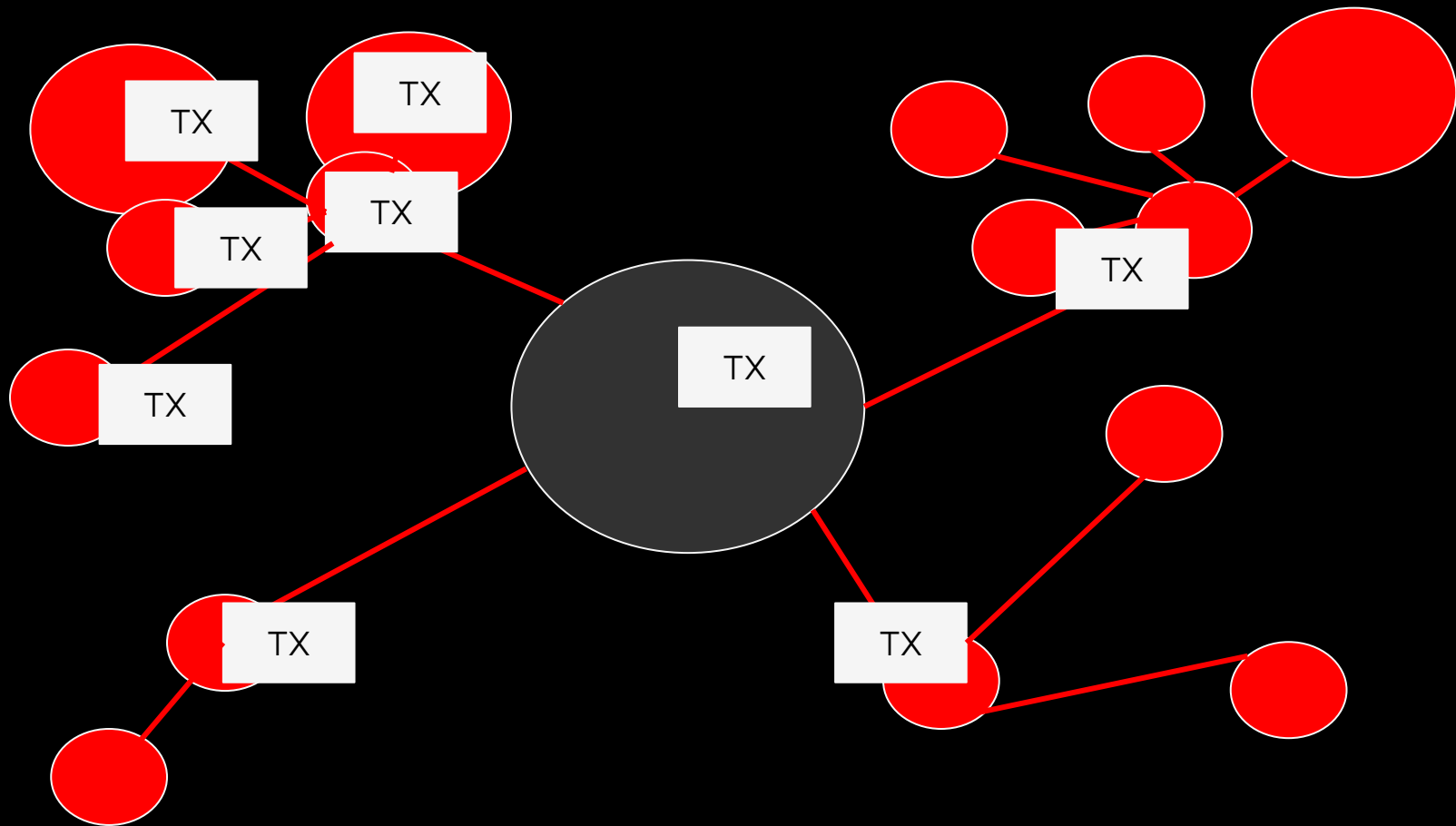


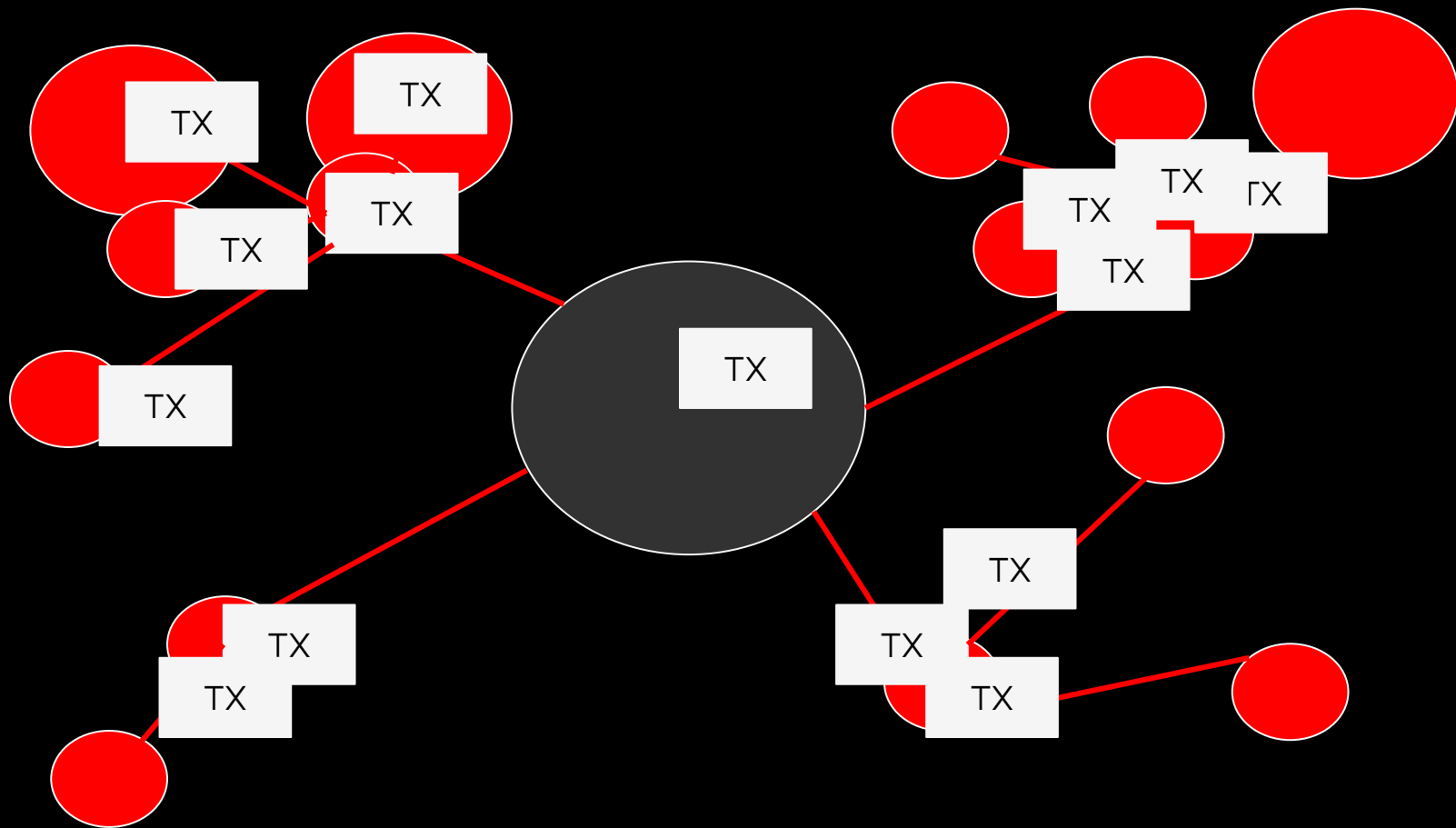


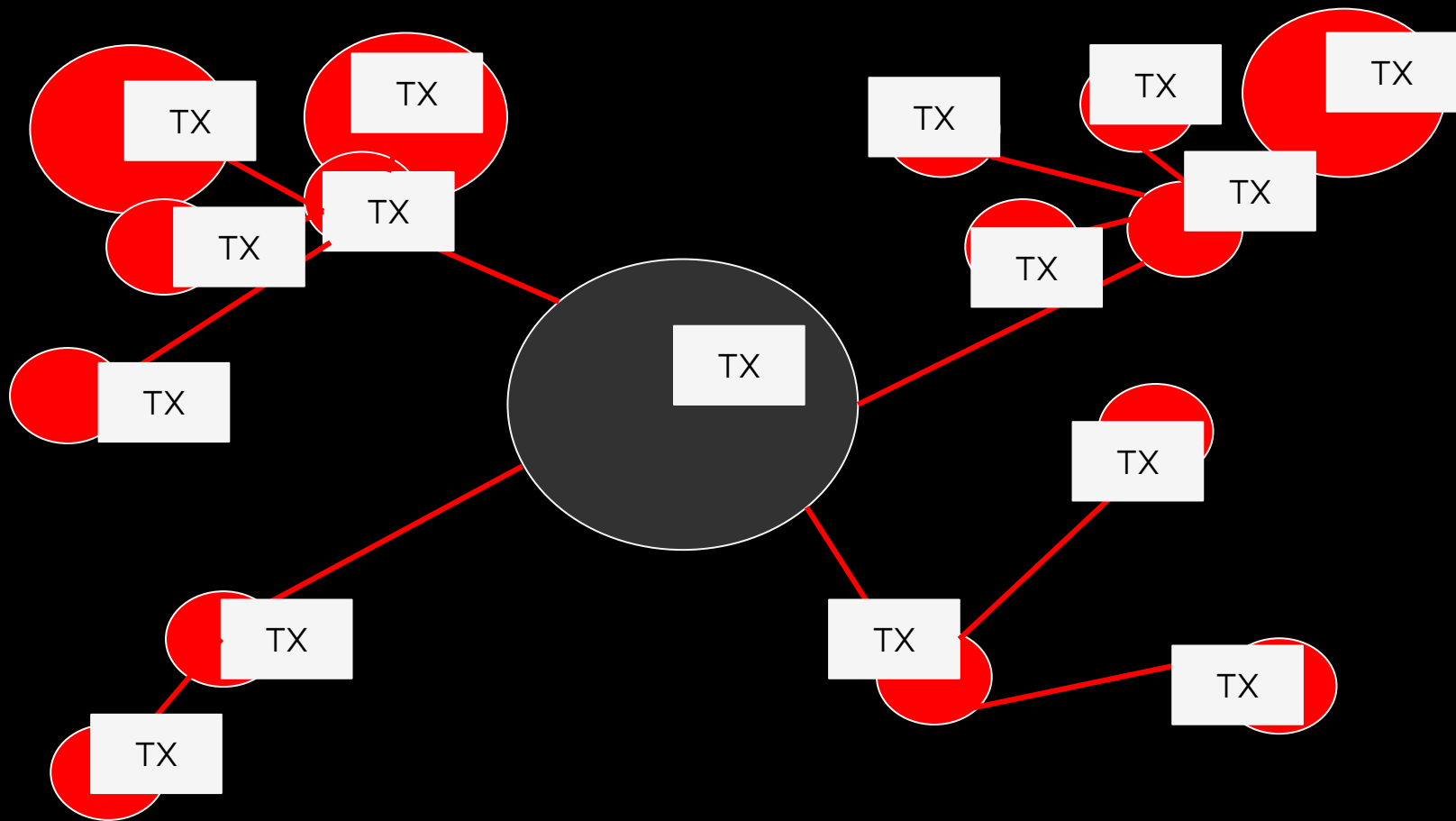














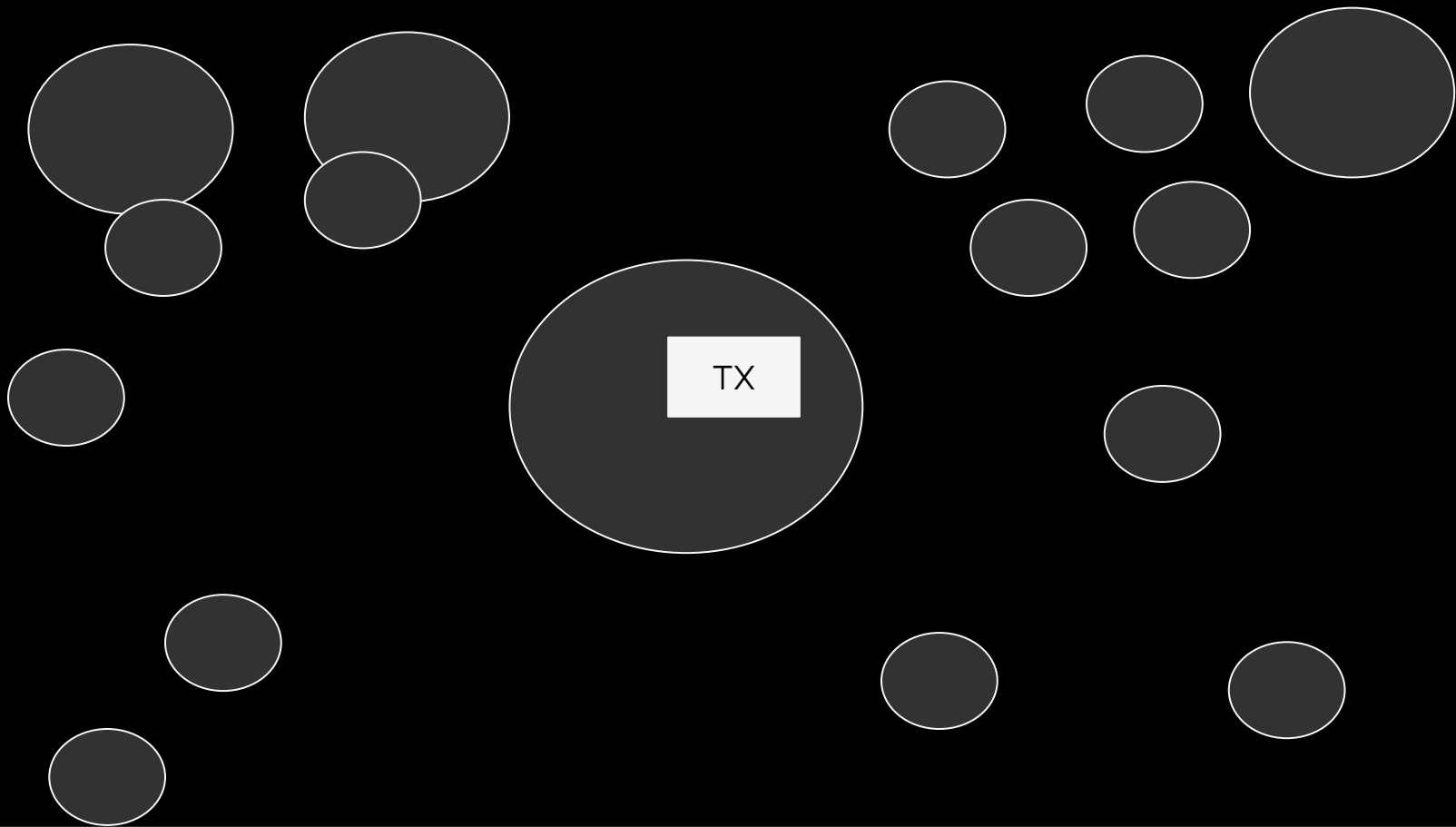


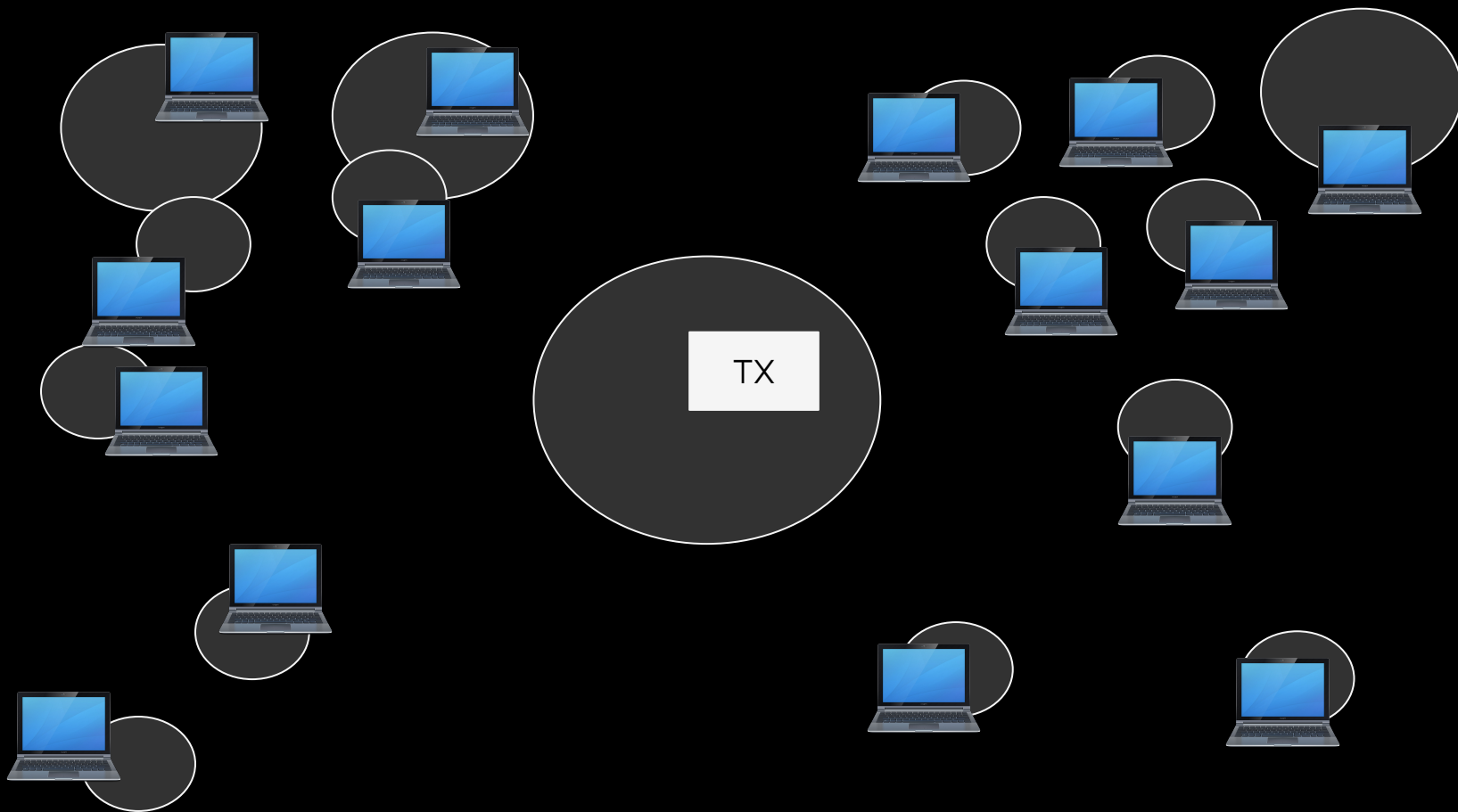
Who Needs to Know About Your Transaction*

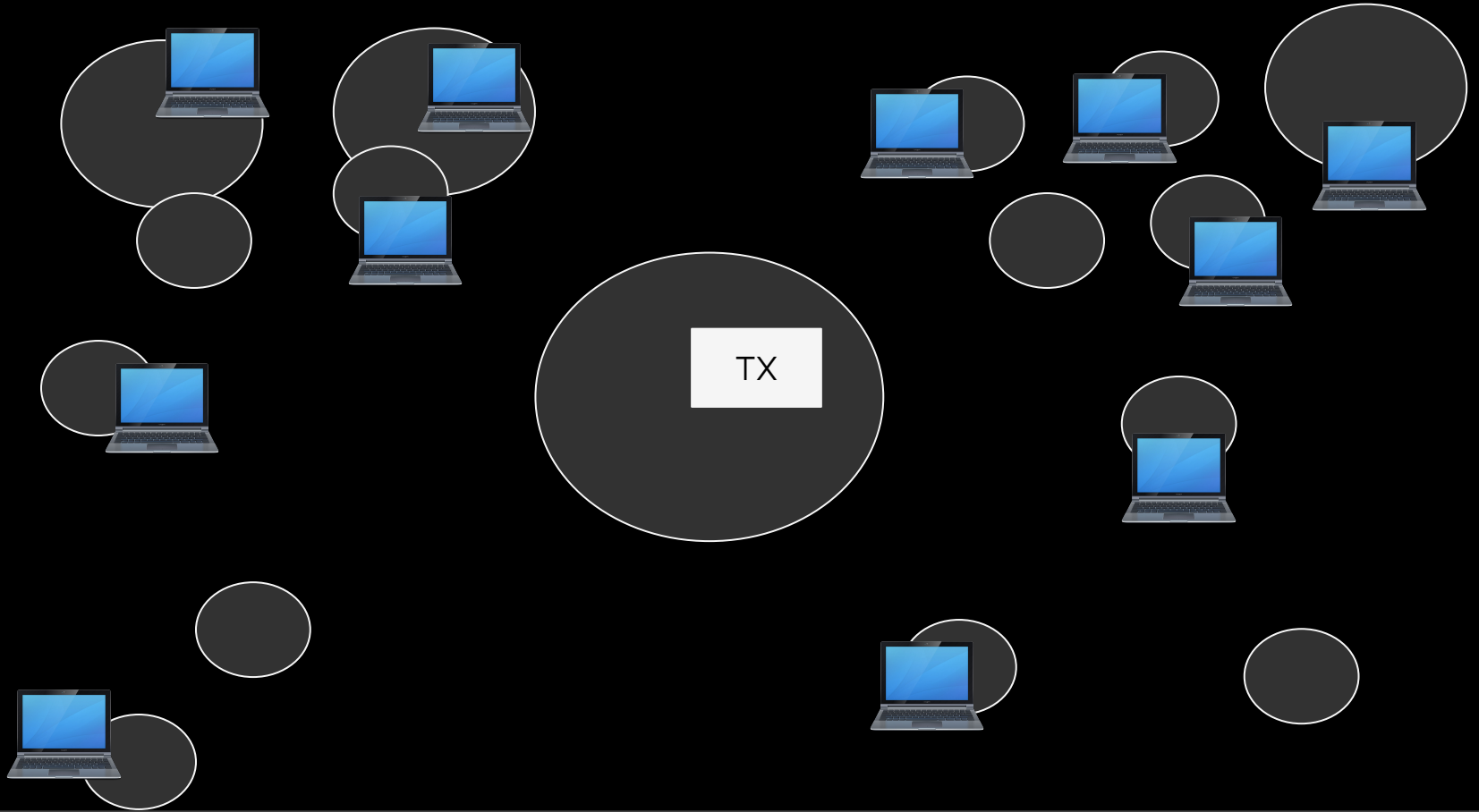
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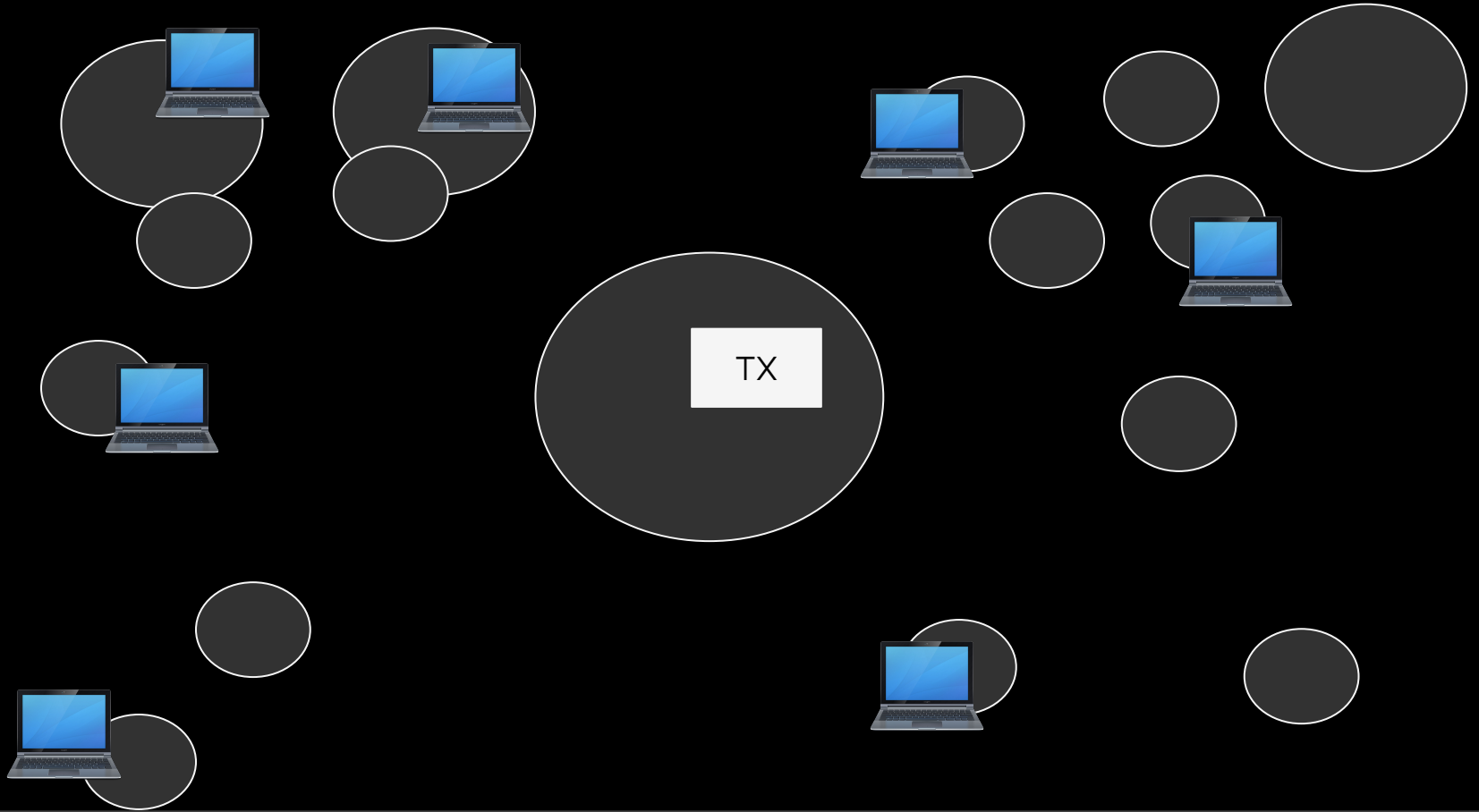
*Before it's in a block

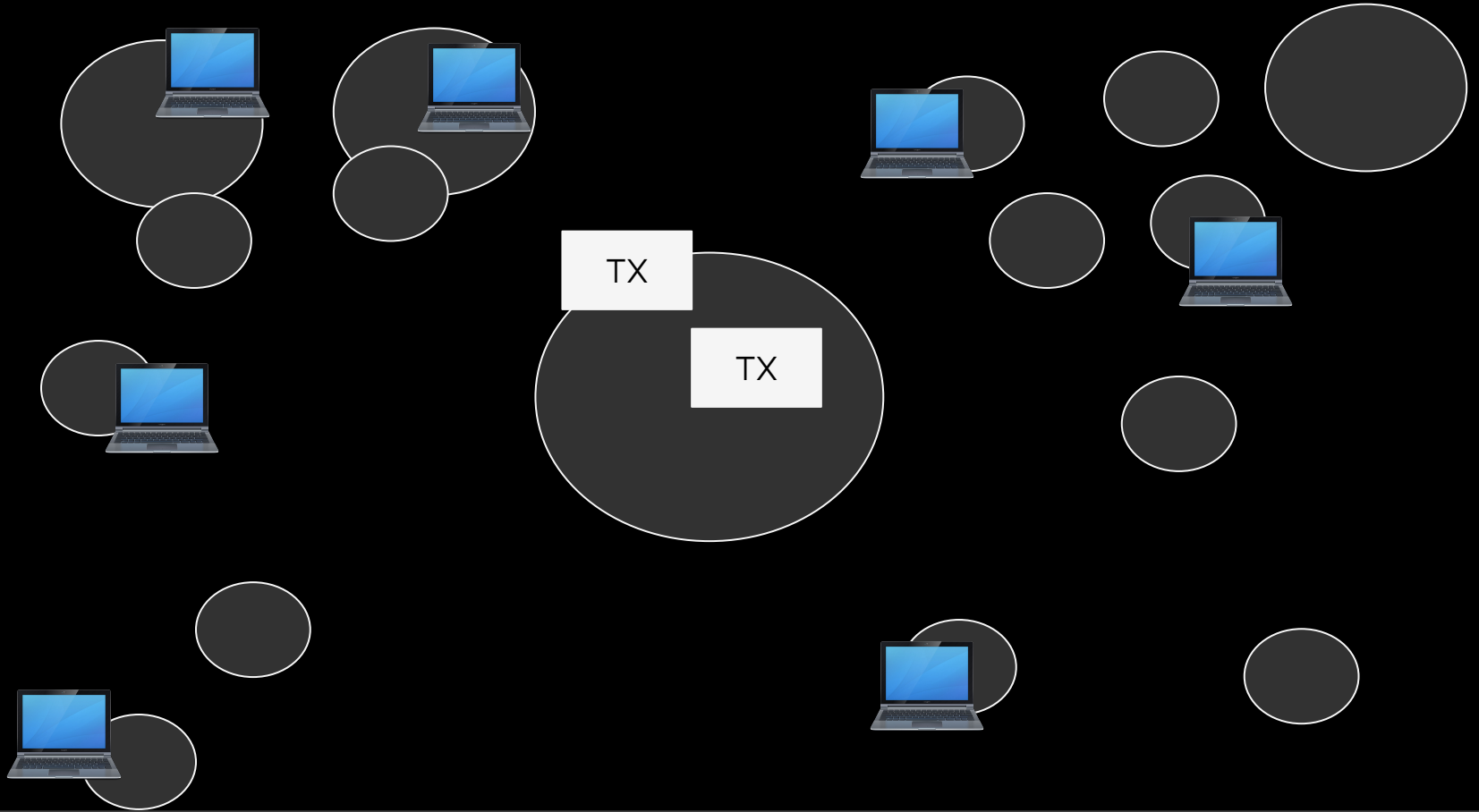


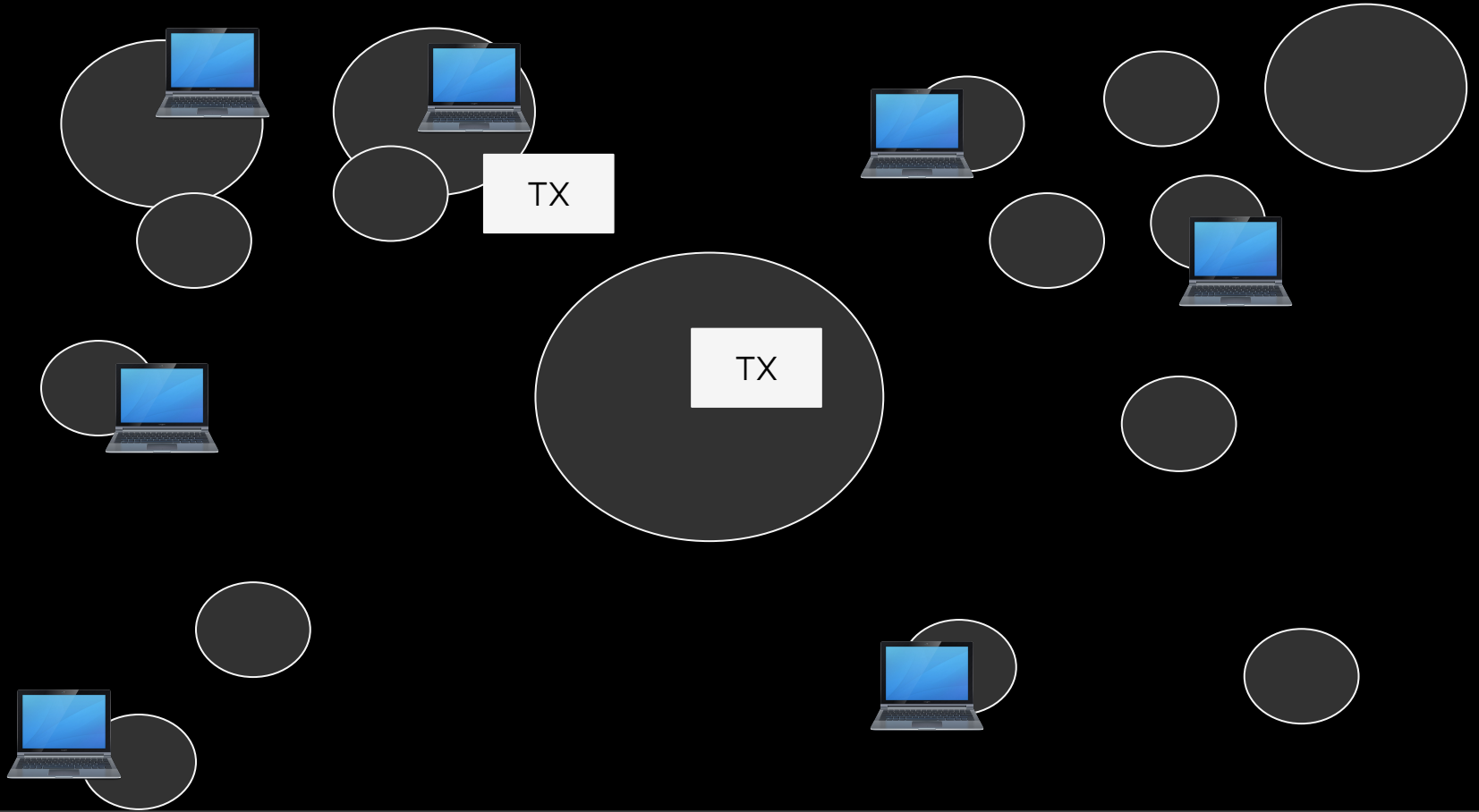


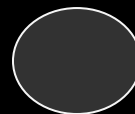
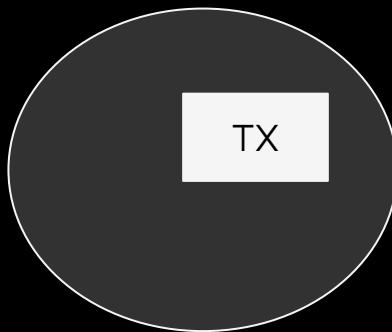
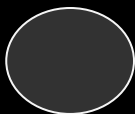
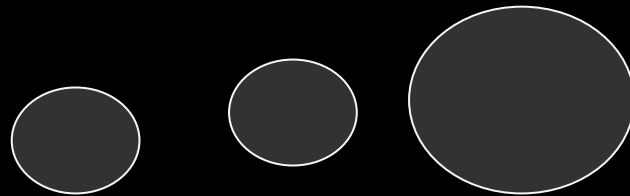
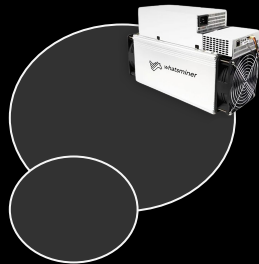


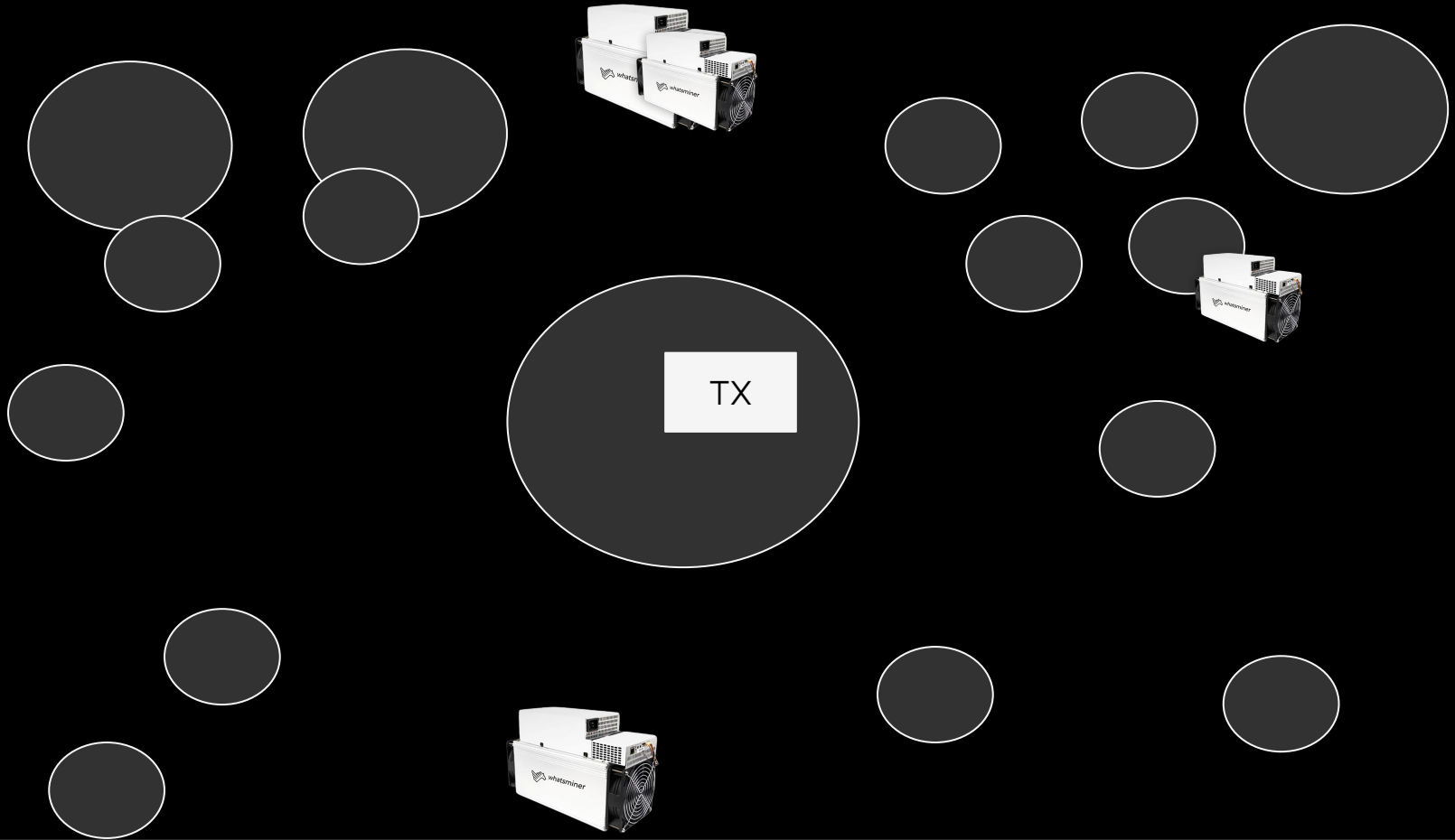


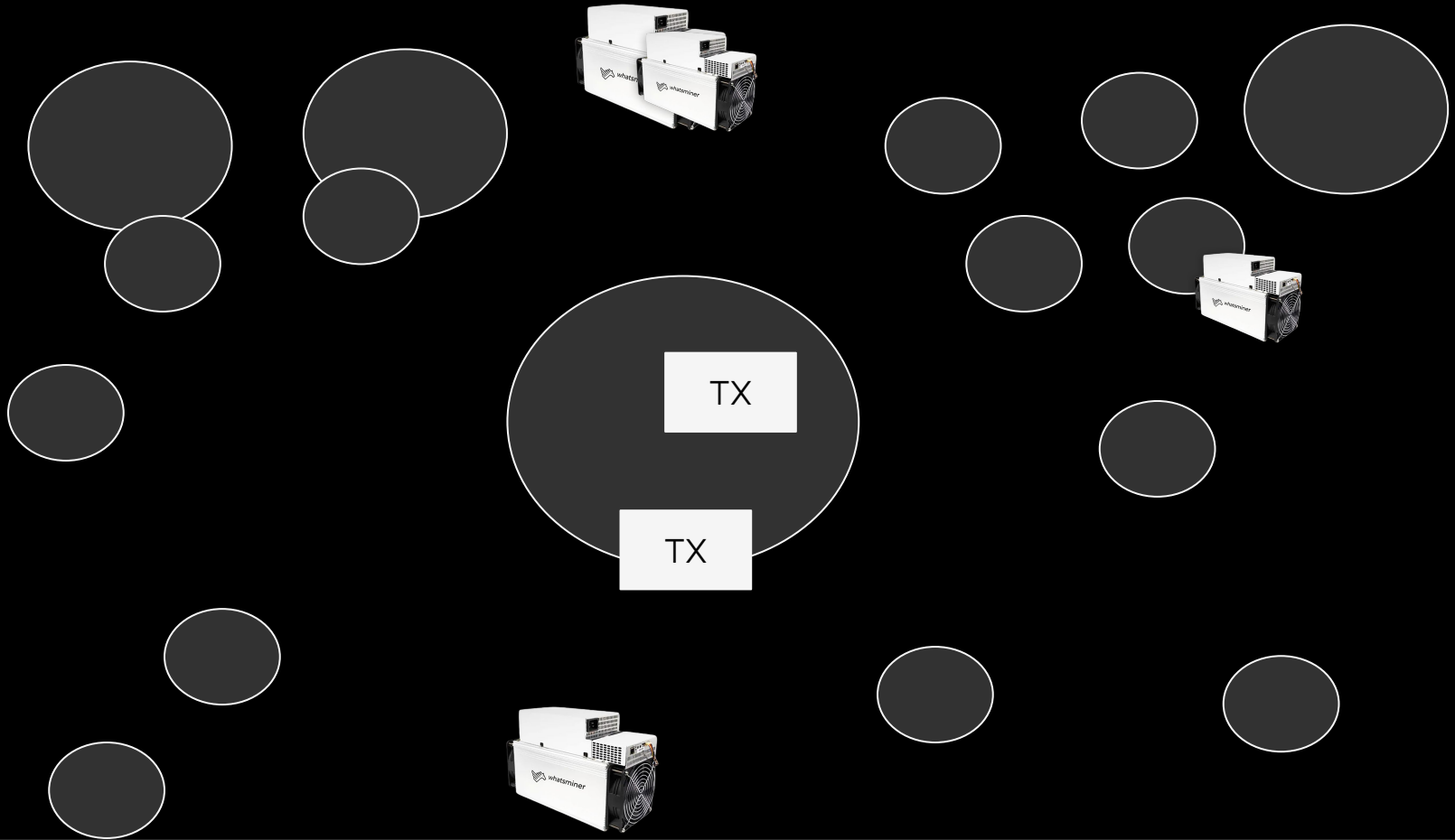


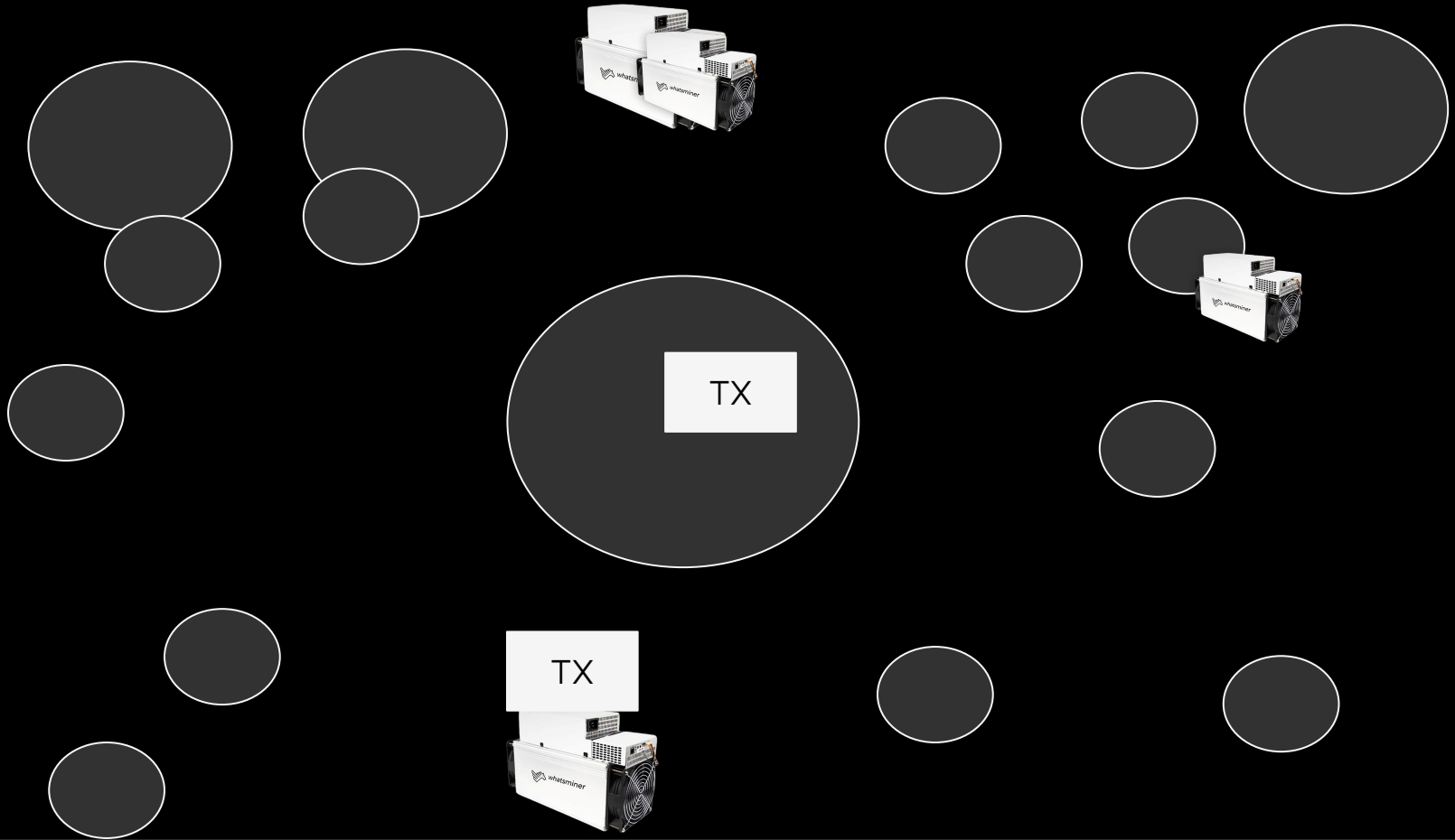


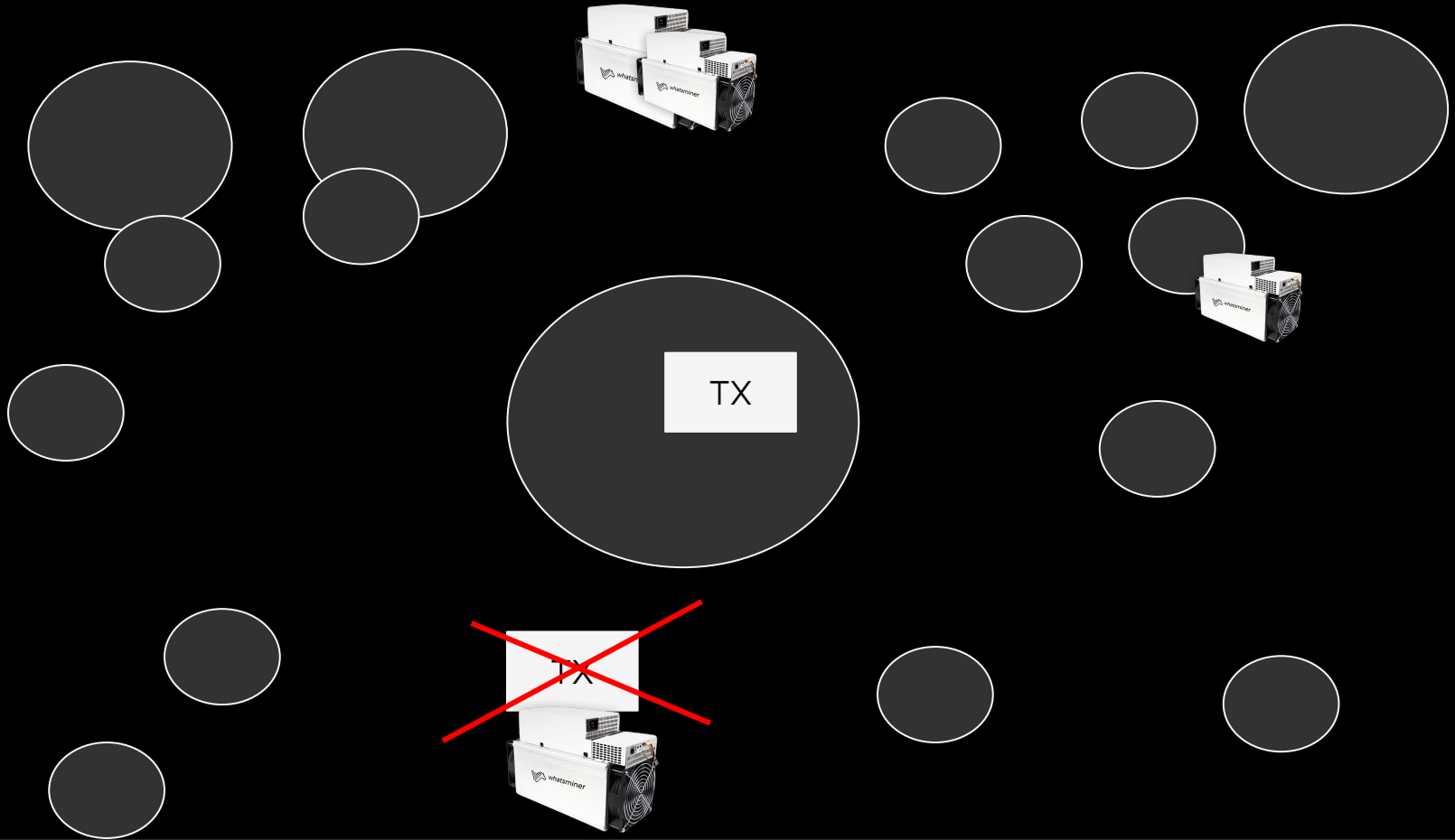


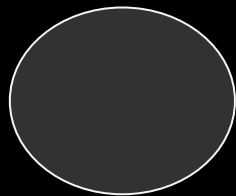


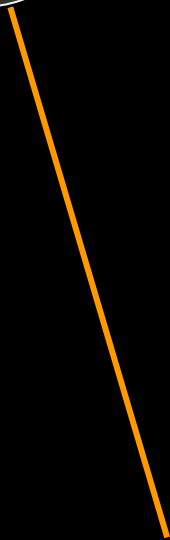
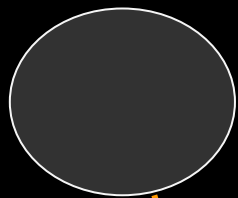


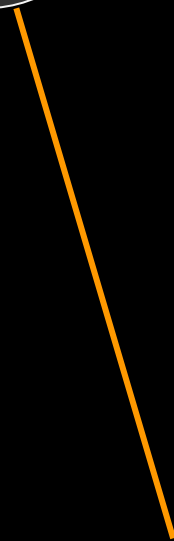
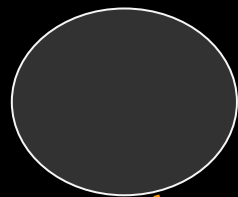








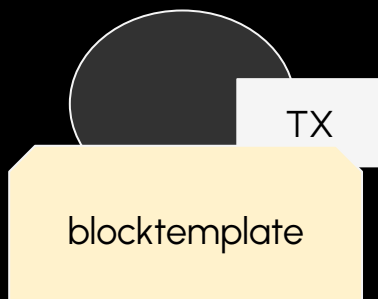


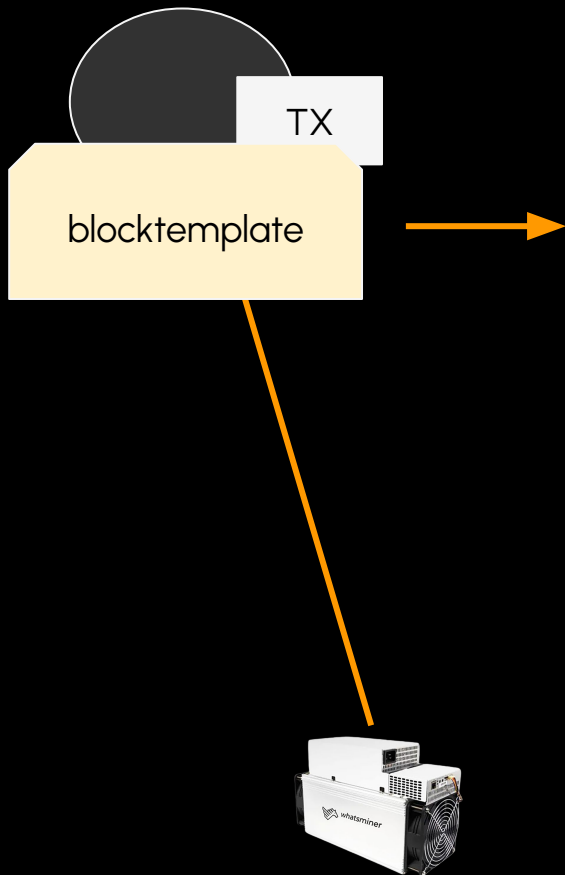


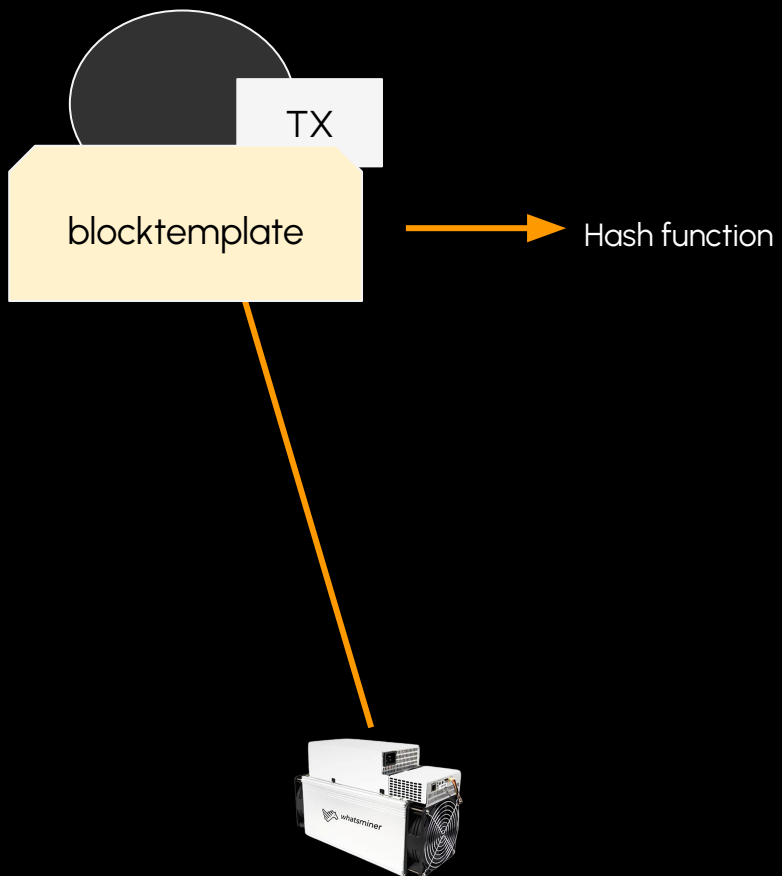
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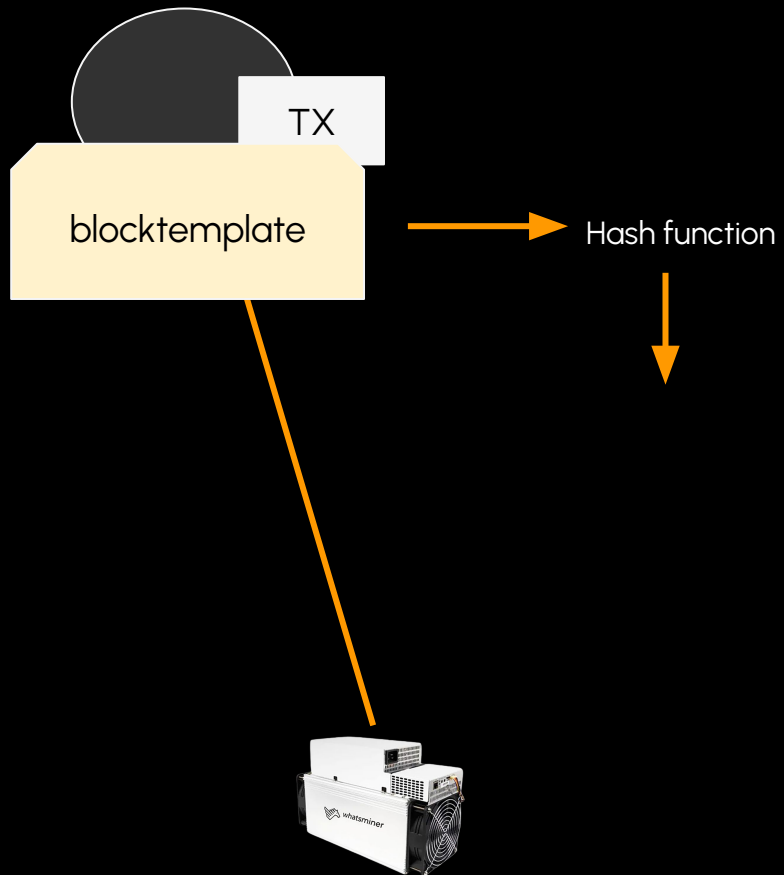


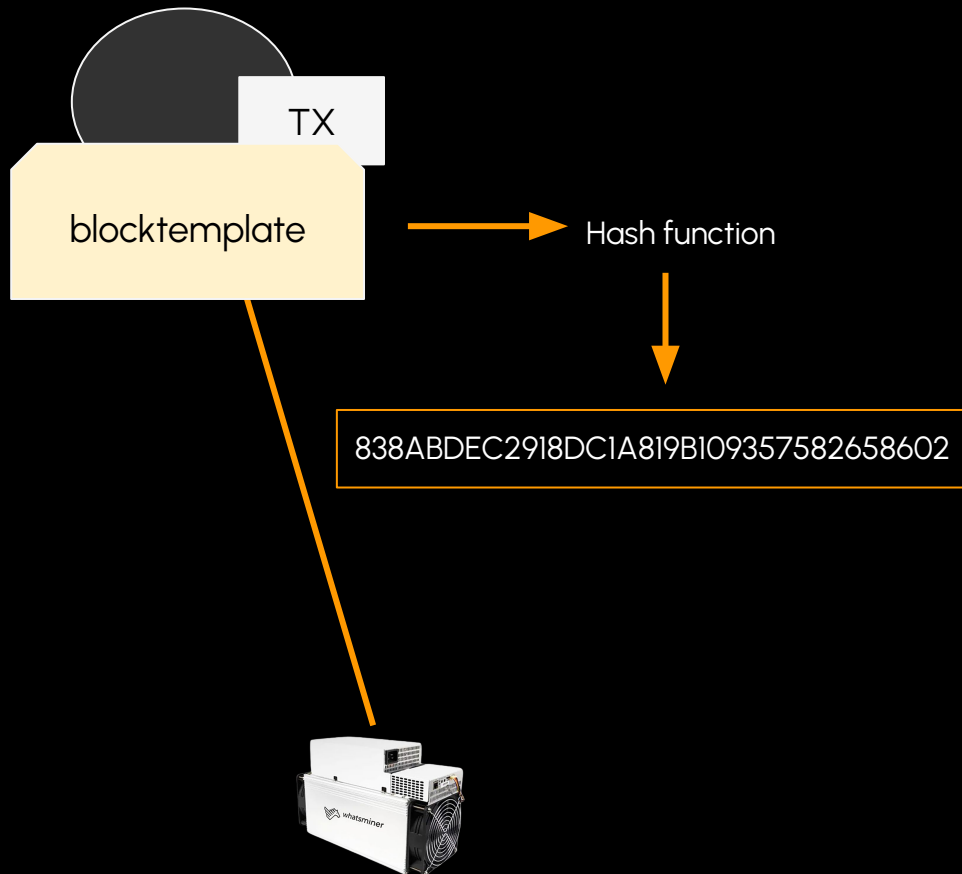


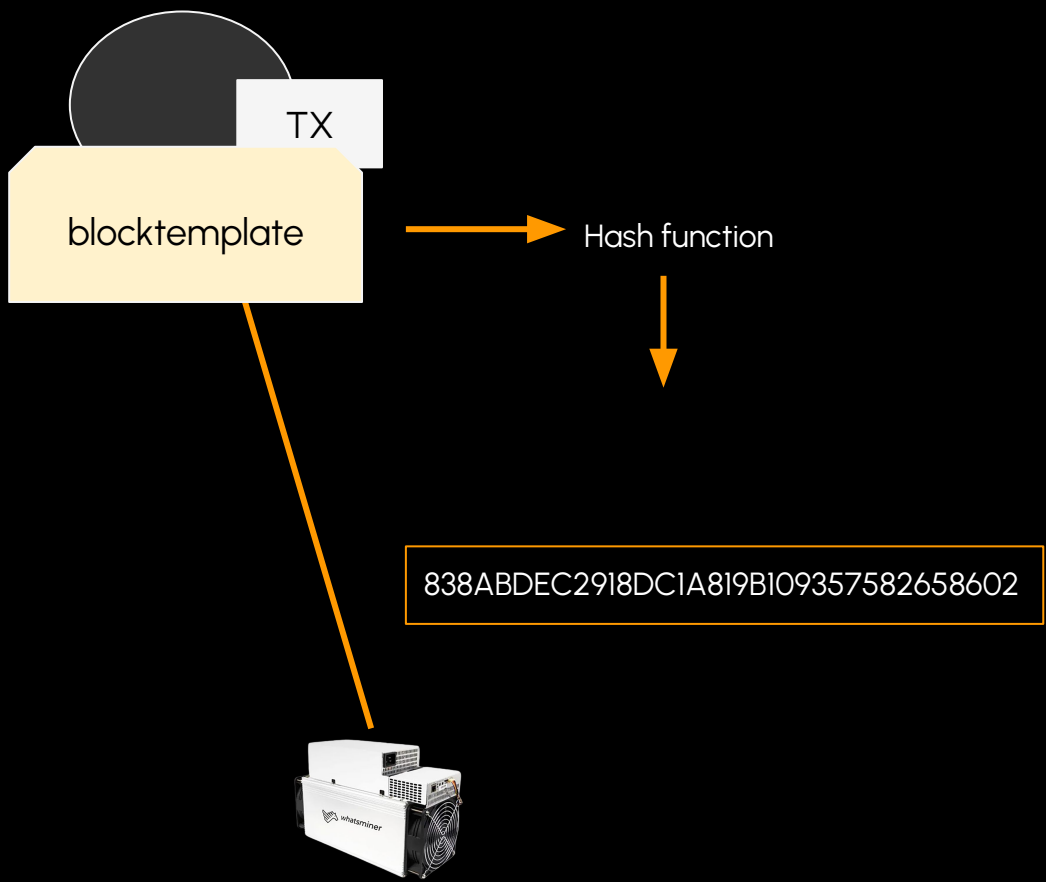


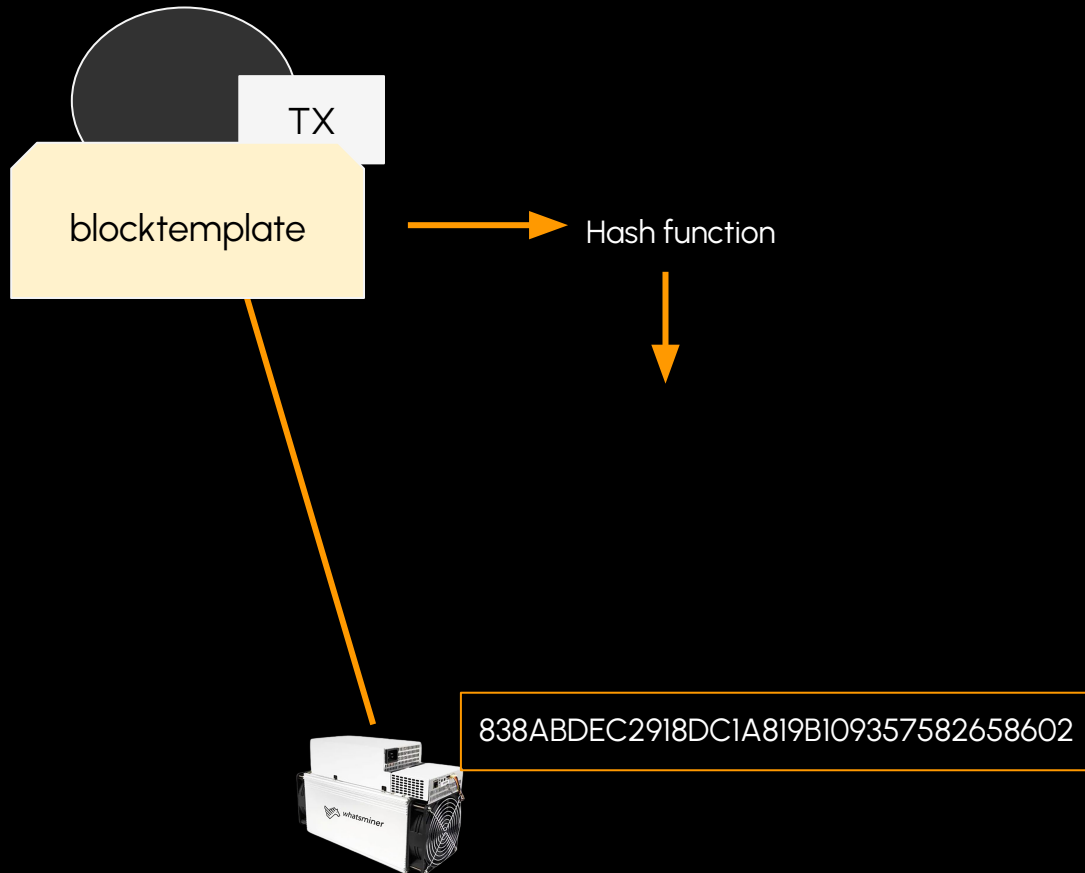


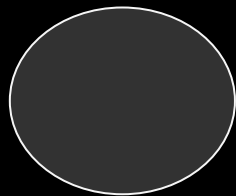




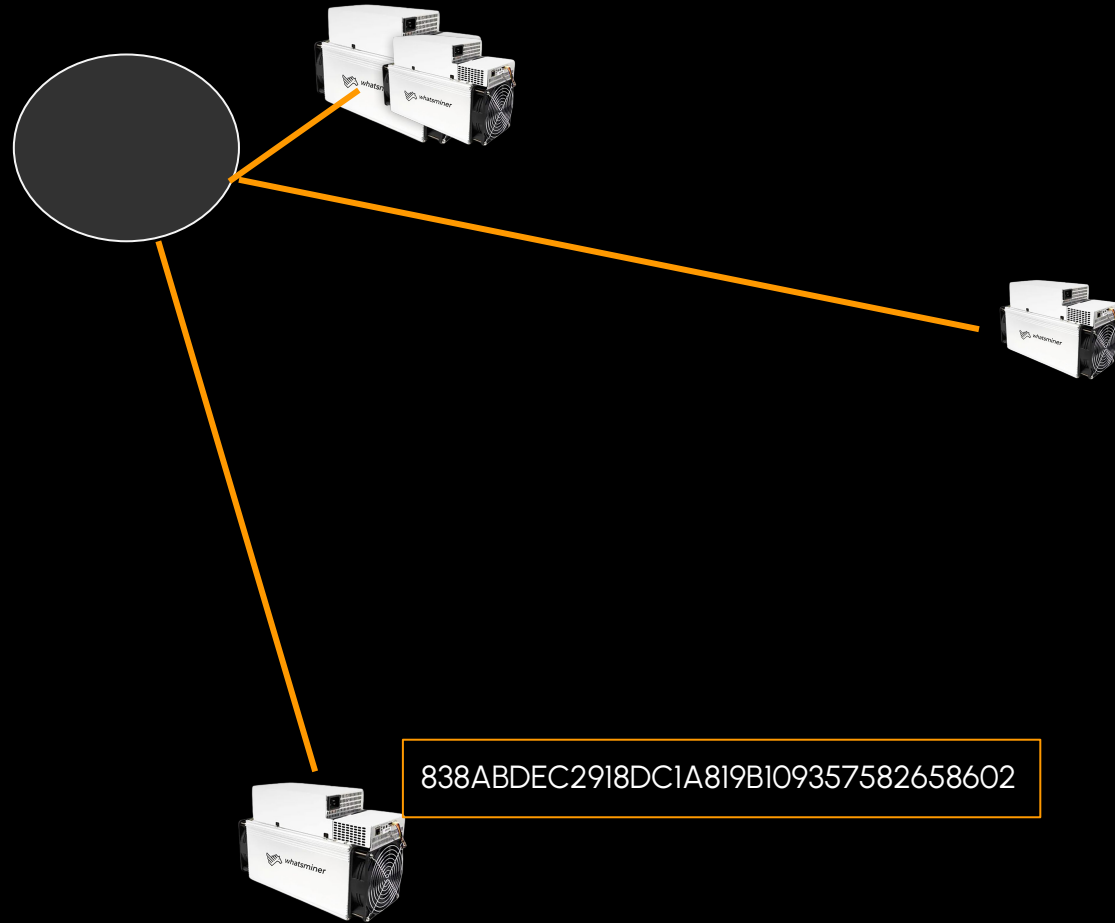


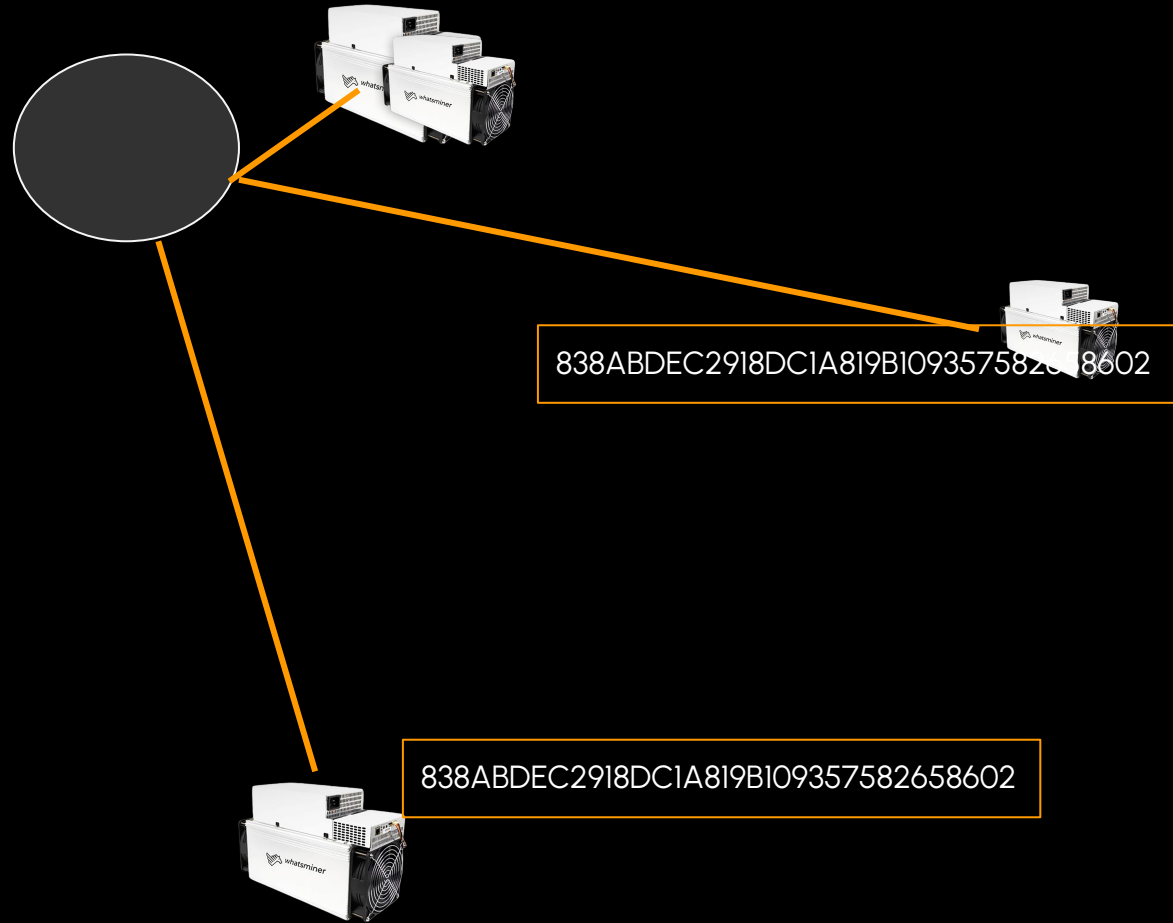


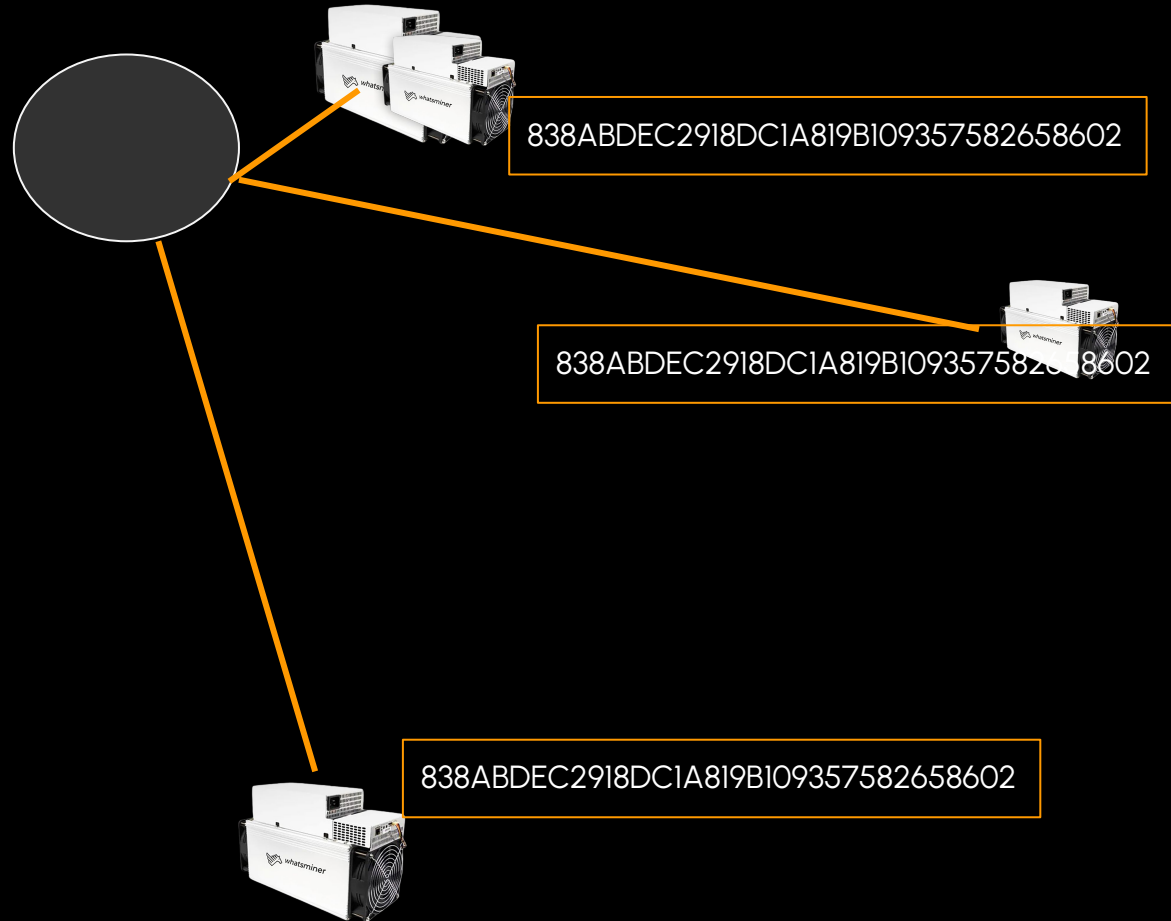


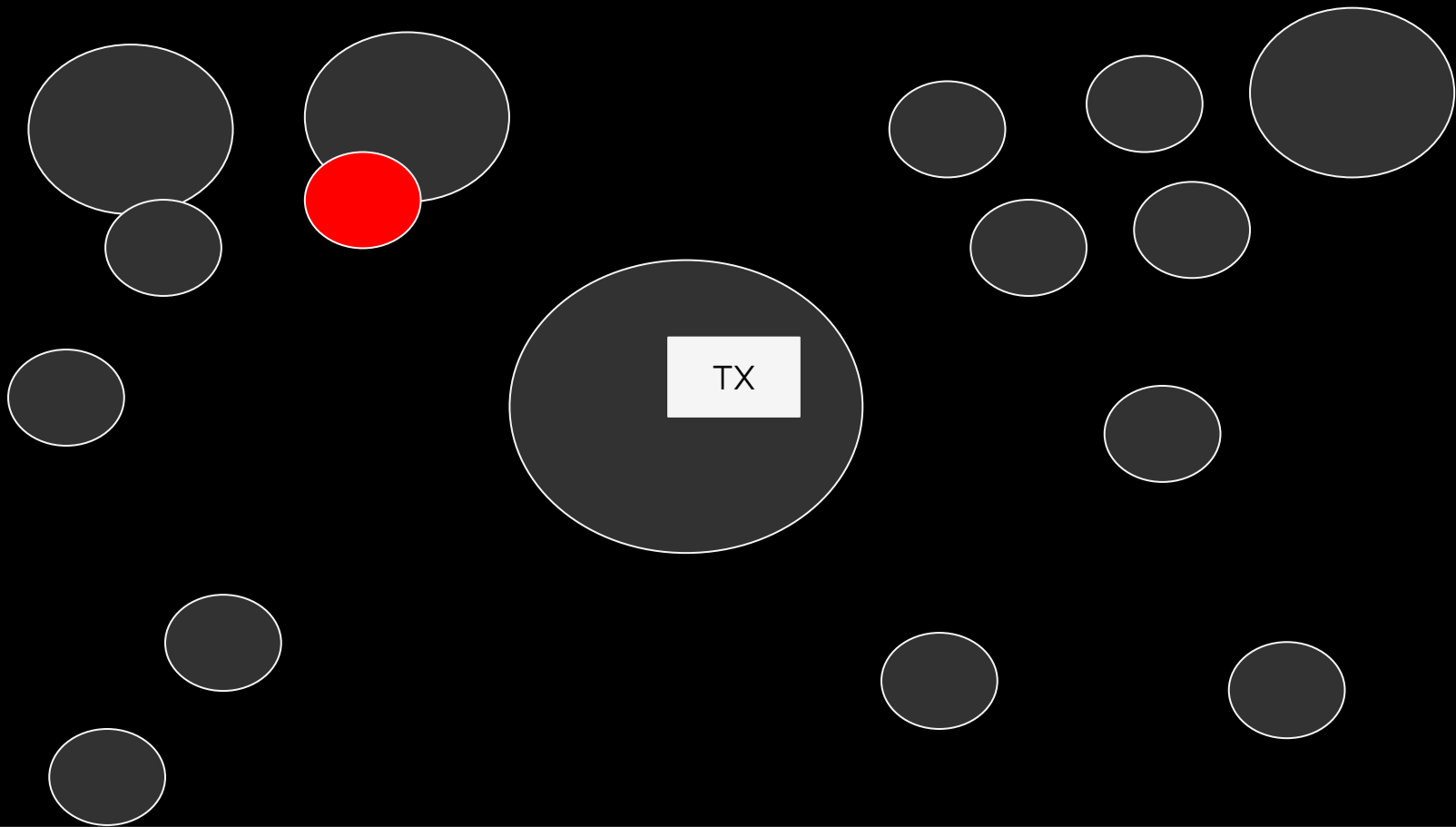


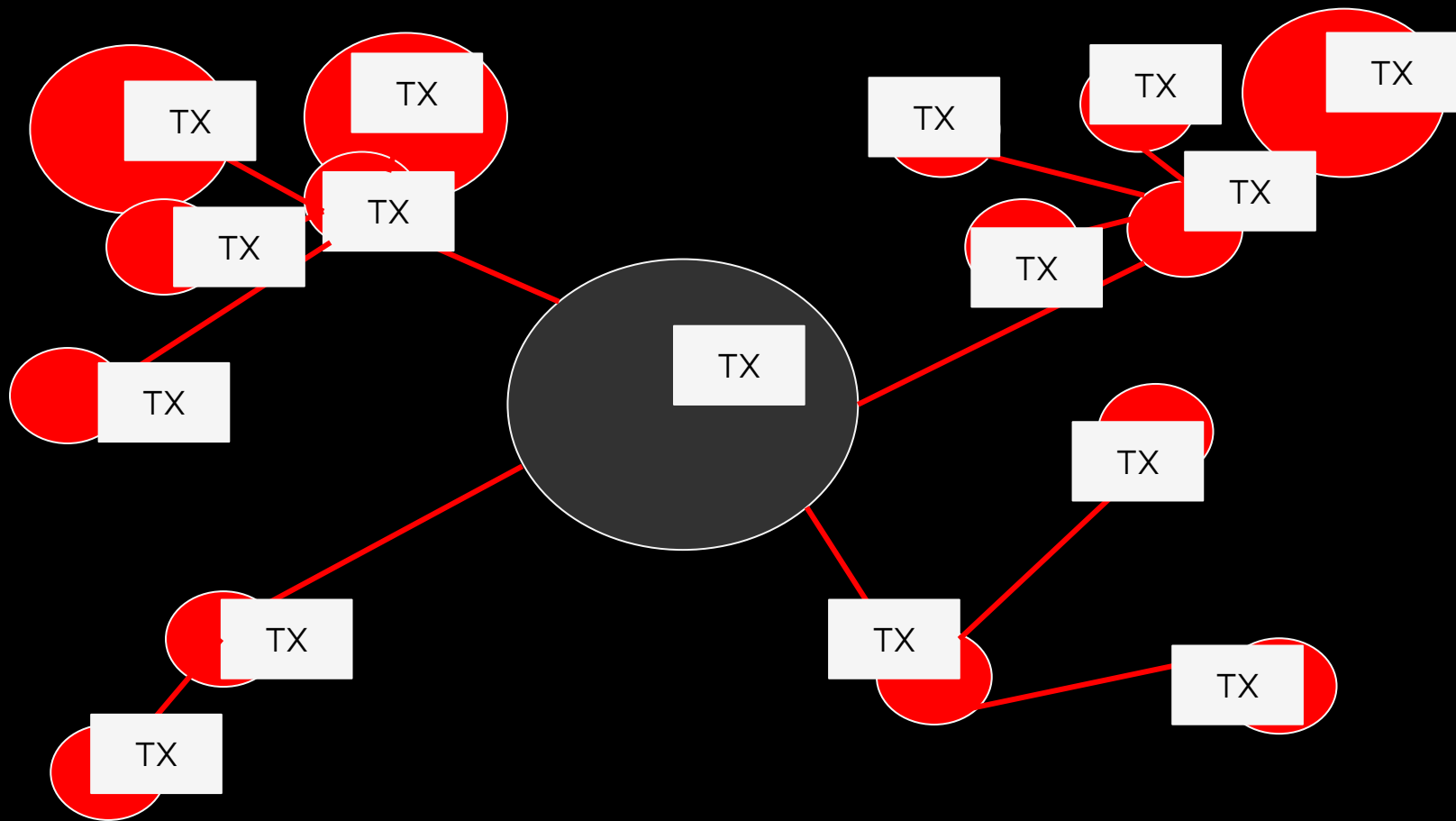
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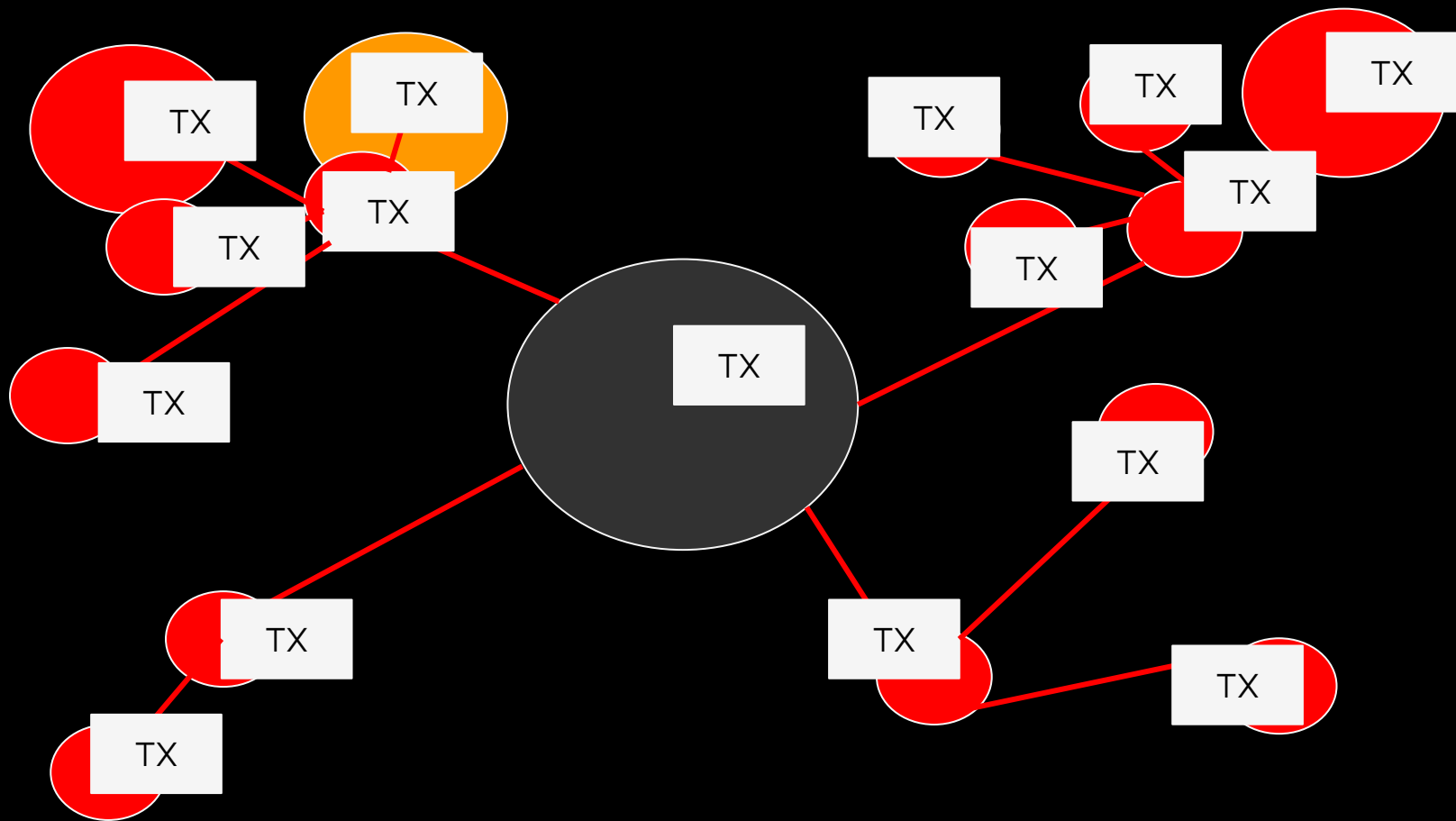


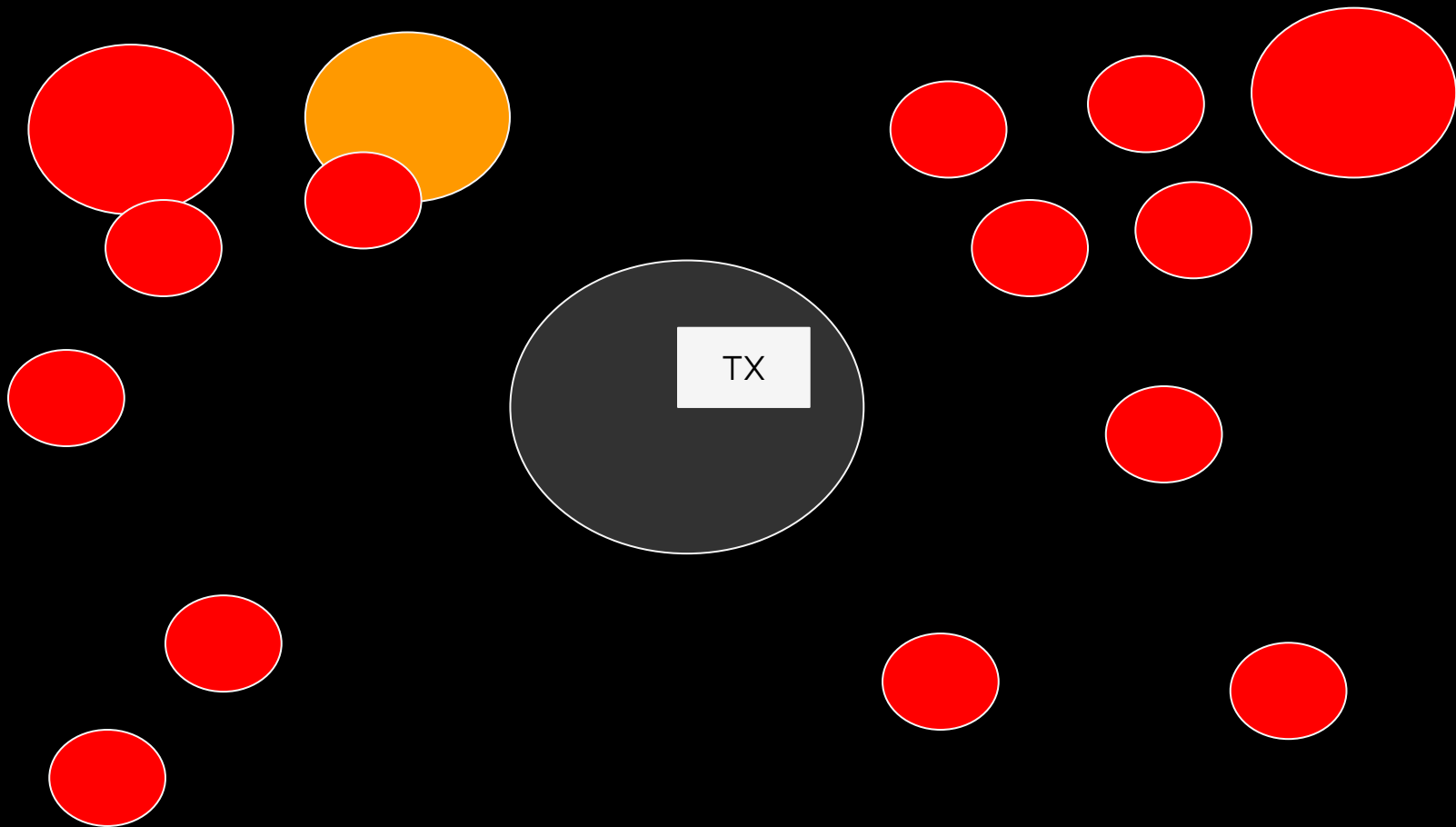


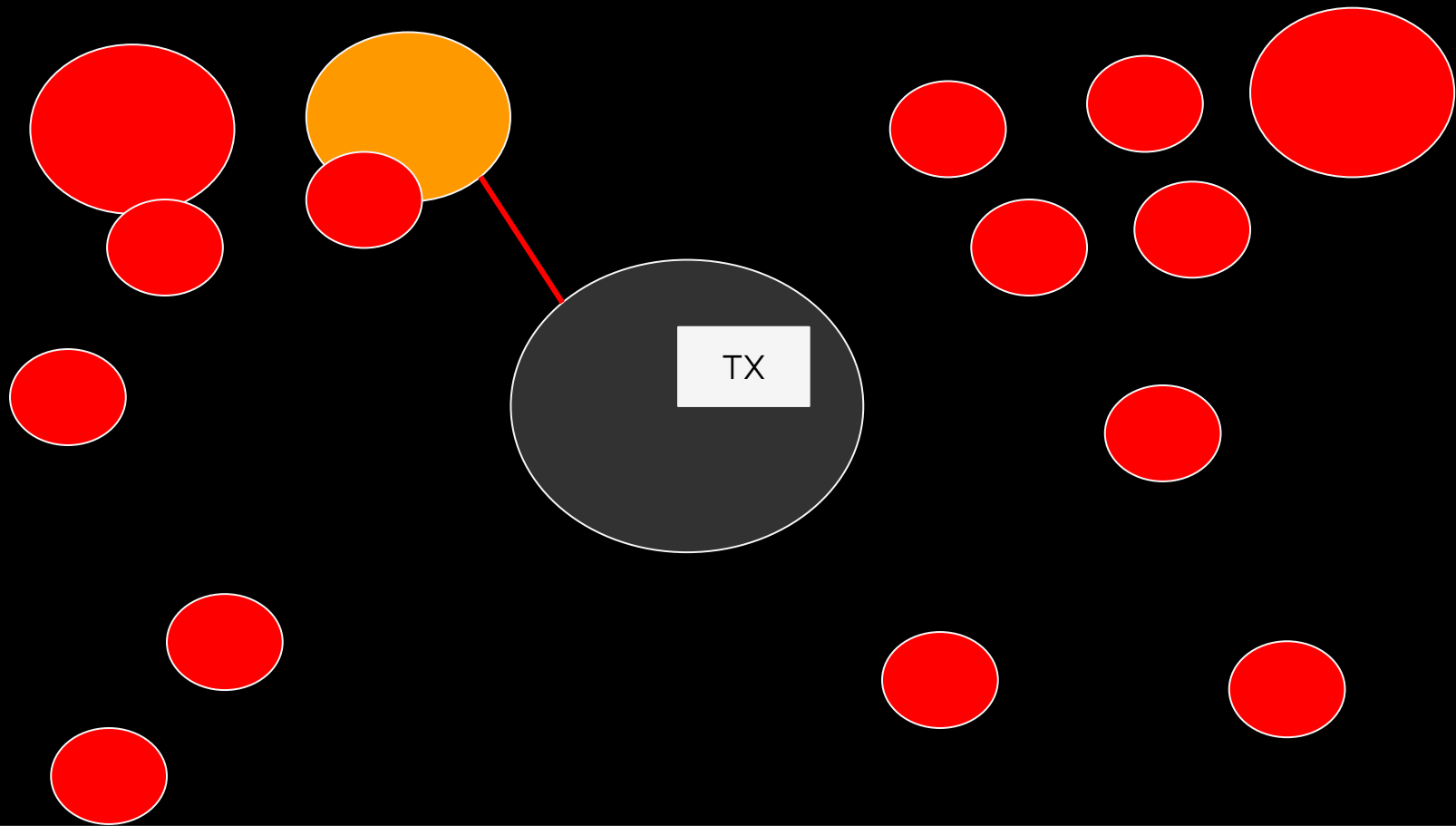


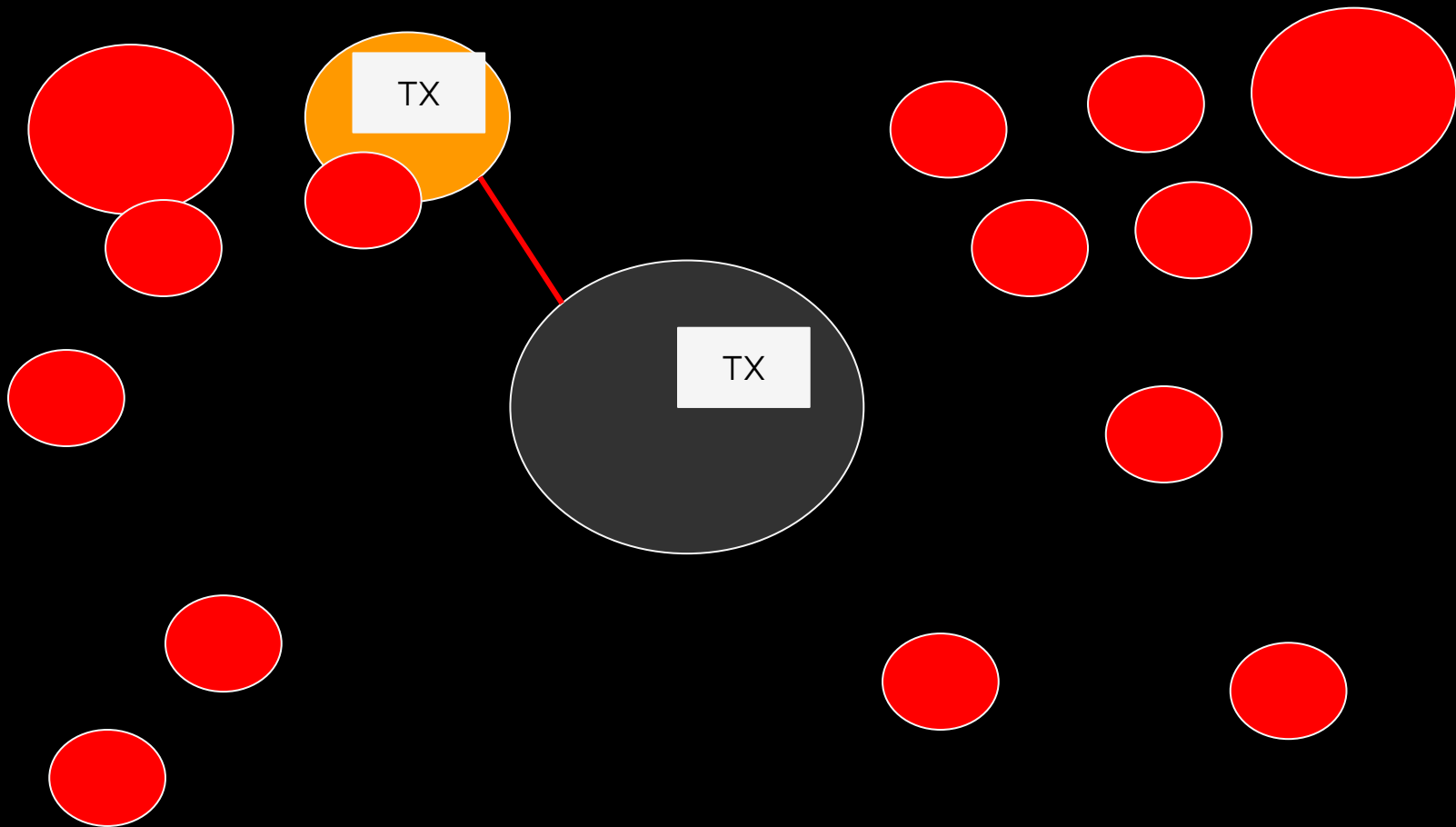


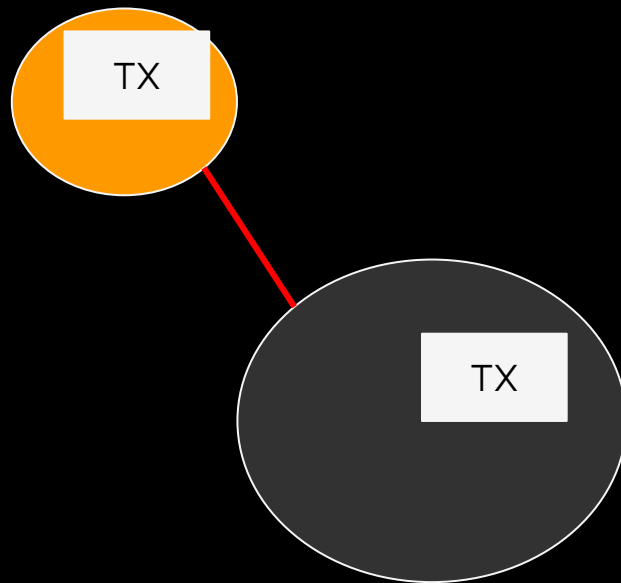


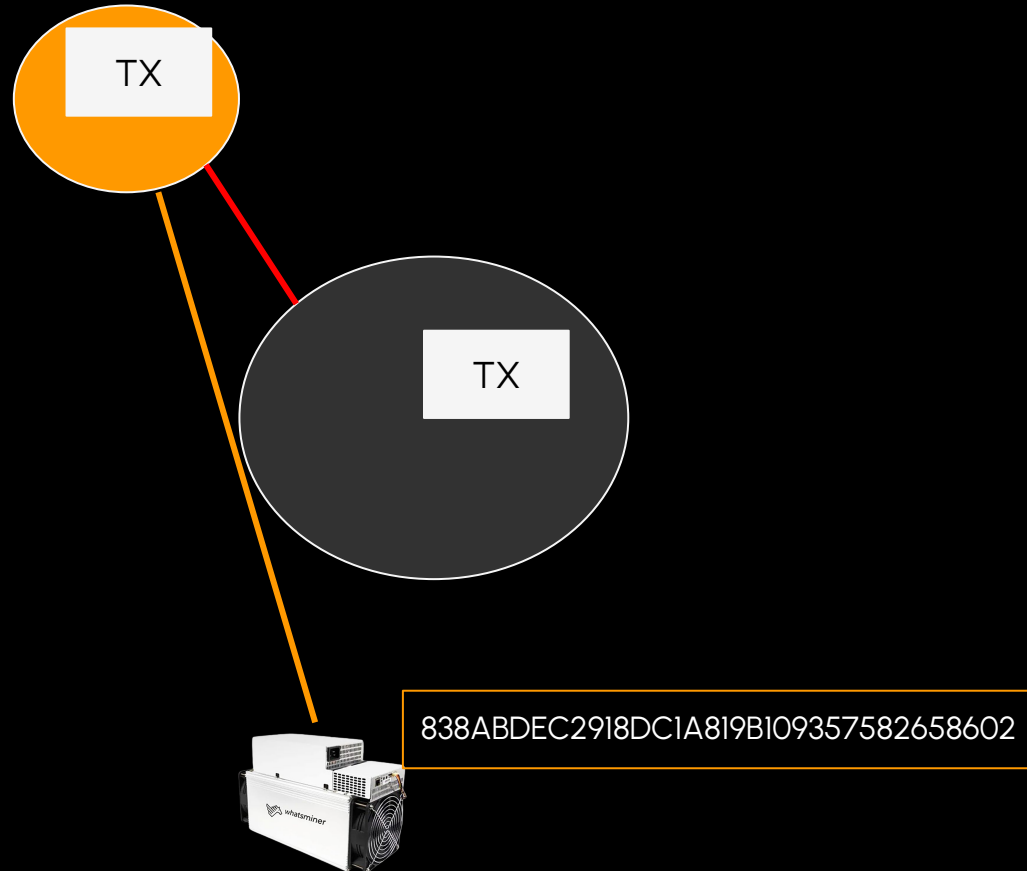


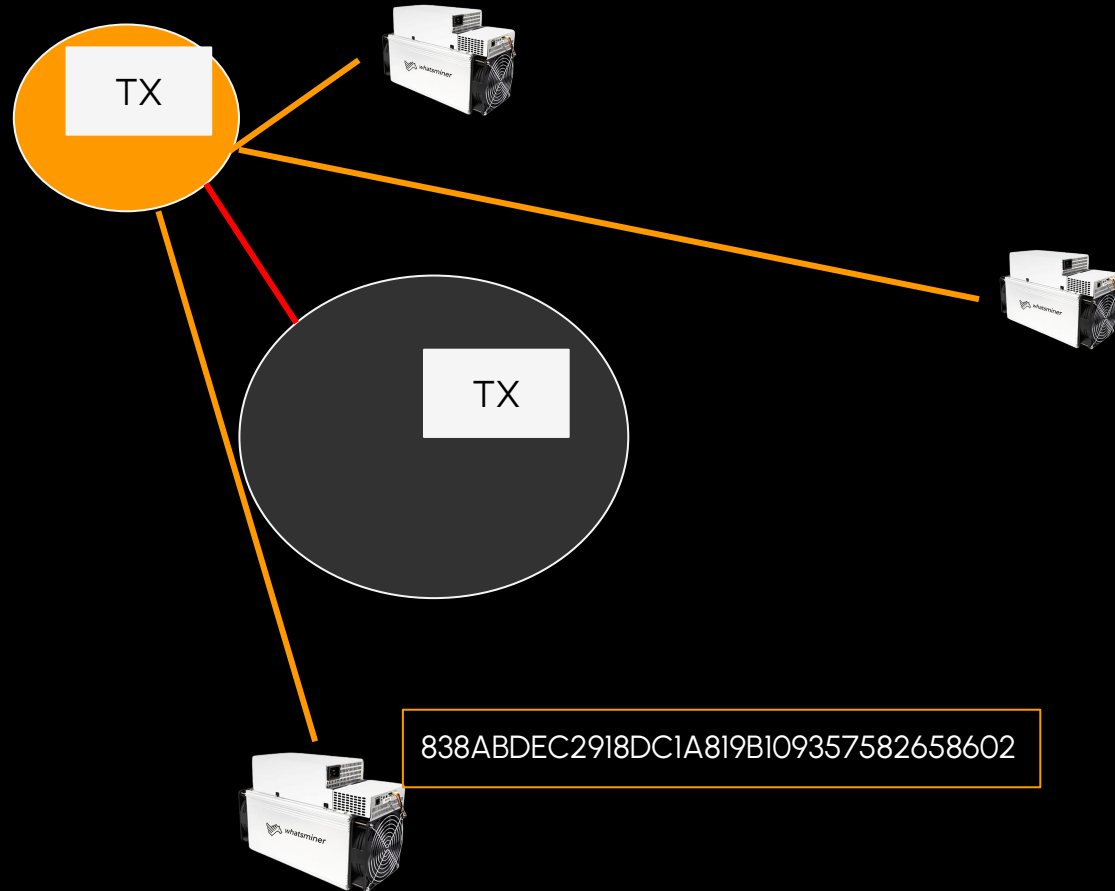






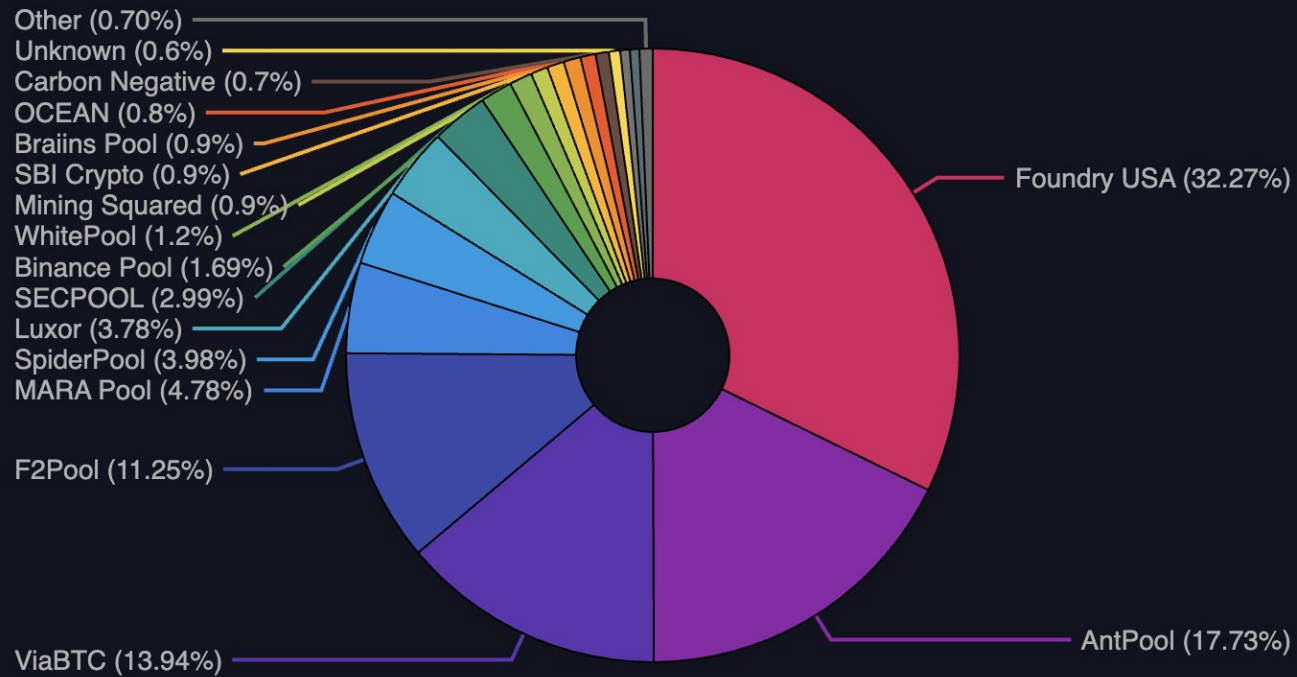






Why Use the Mempool?

You don't need to



The top 3 pools
control __% of the
hashrate



The top 3 pools
control 63% of the
hashrate



The top 10 pools
control __% of the
hashrate

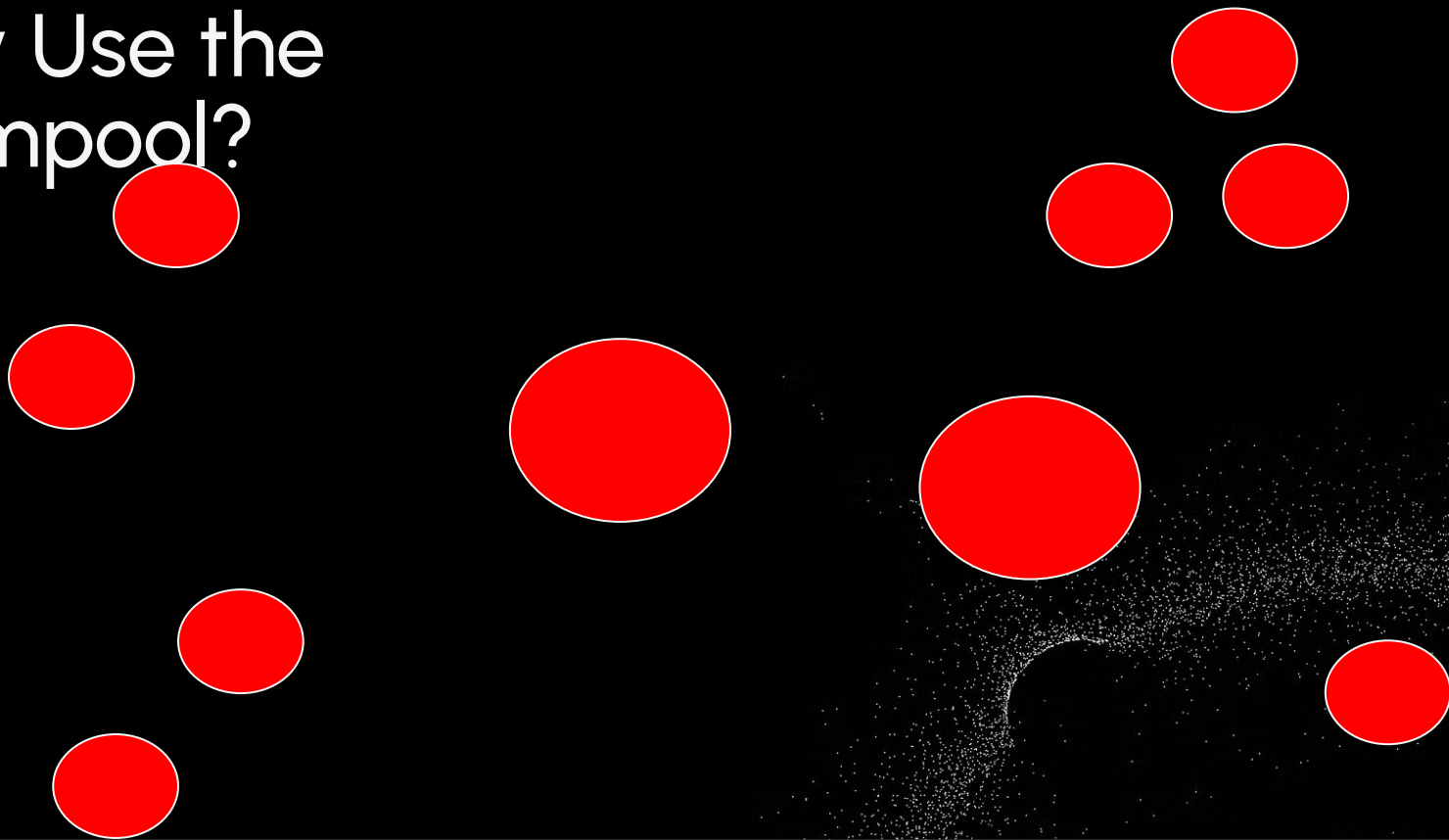


The top 10 pools
control 94% of the
hashrate



Why Use the Mempool?

Why Use the Mempool?



Provided the number of block template producing actors remains beneath, say 1000, it'd be quite feasible to publish a list of tor endpoints that nodes can independently + directly submit their transactions to. In fact, merely allowing users to select their own list of endpoints to use alternatively to the mempool would be a low effort starting point for the eventual replacement.



Transaction

89e69ed71c4d0fbbed52980c814c124a0763bdcf94f081bb0fd4466baafaae6b

First seen

2 minutes ago

Fee

99,207 sats \$

ETA

In ~9 minutes

[Accelerate](#)

Fee rate

1.34 sat/vB

Features

[SegWit](#)

[Taproot](#)

[RBF](#)



[Consolidation](#)

Flow

Accelerate?

AntPool

Foundry

Transaction

89e69ed71c4d0fbbed52980c814c124a0763bdcf94f081bb0fd4466baafaae6b

First seen

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ETA

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Features

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Consolidation

Accelerate

Fee

99,207 sats

Fee rate

1.34 sat/vB

Flow

Acceleration Stats



Acceleration stats as of May 3, 2025

The Mempool is Obsolete

Why Use the Mempool?

Know what Fees Are
Being Paid

Why Use the Mempool?

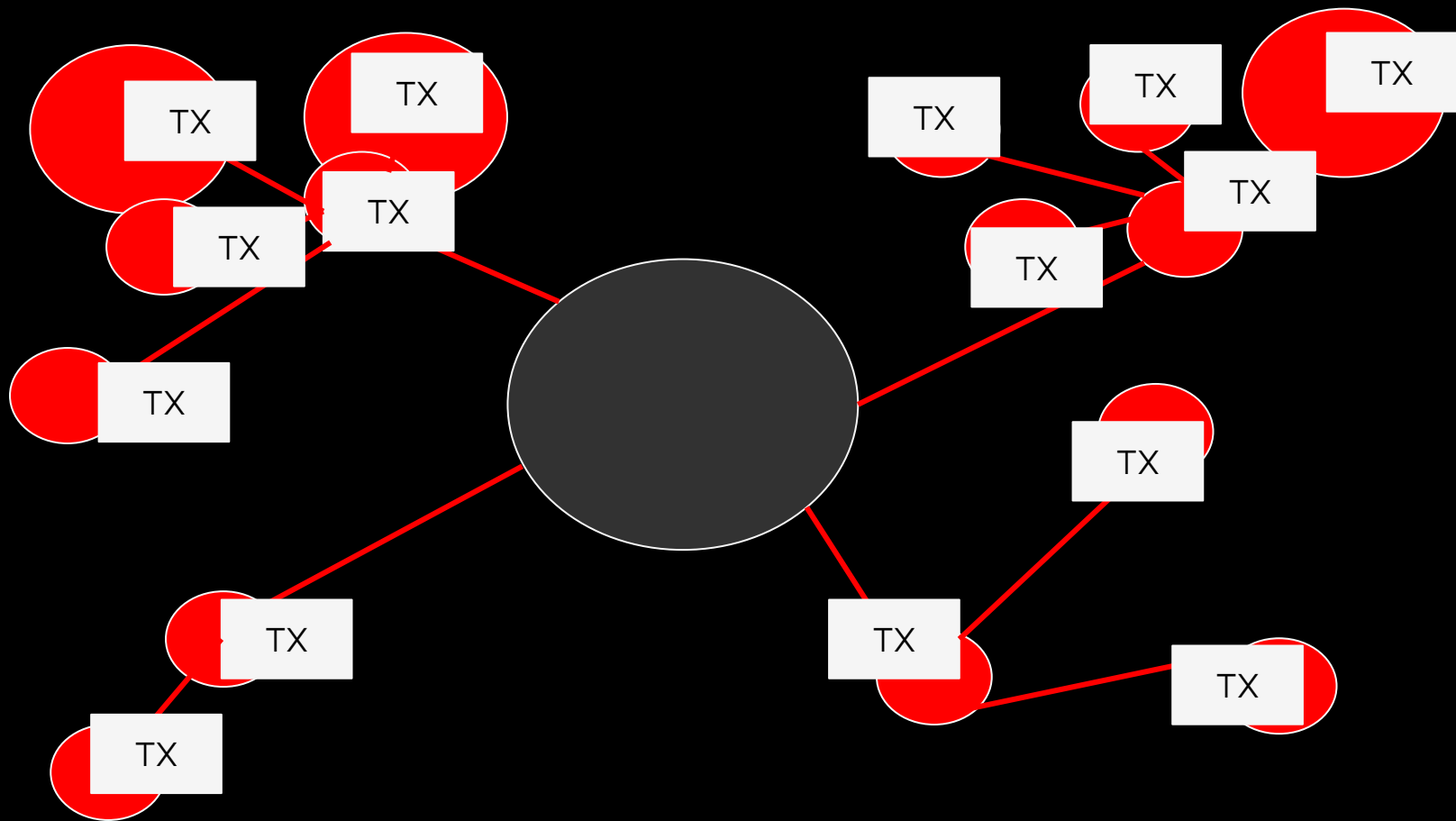
Know what Fees Are
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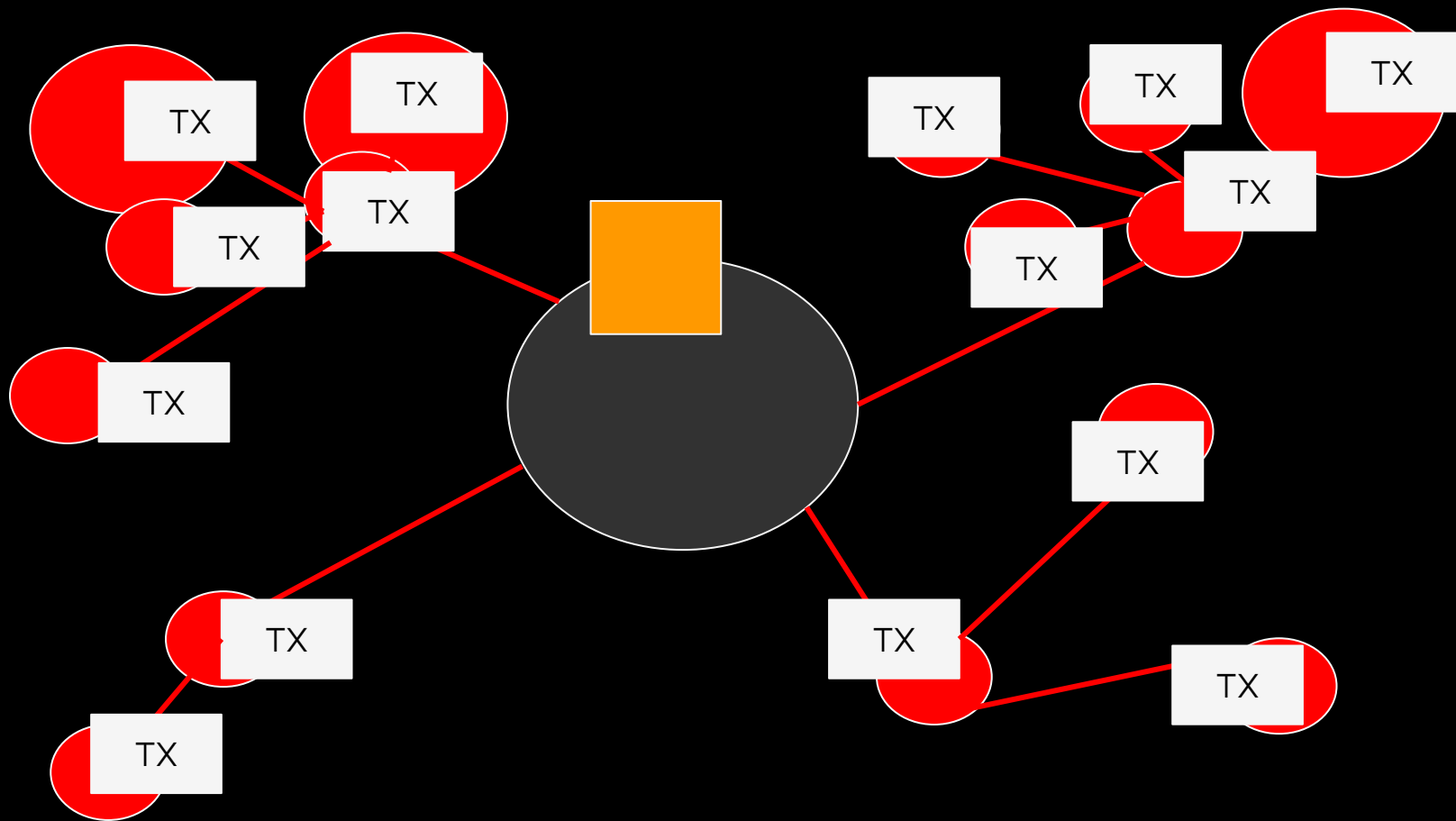


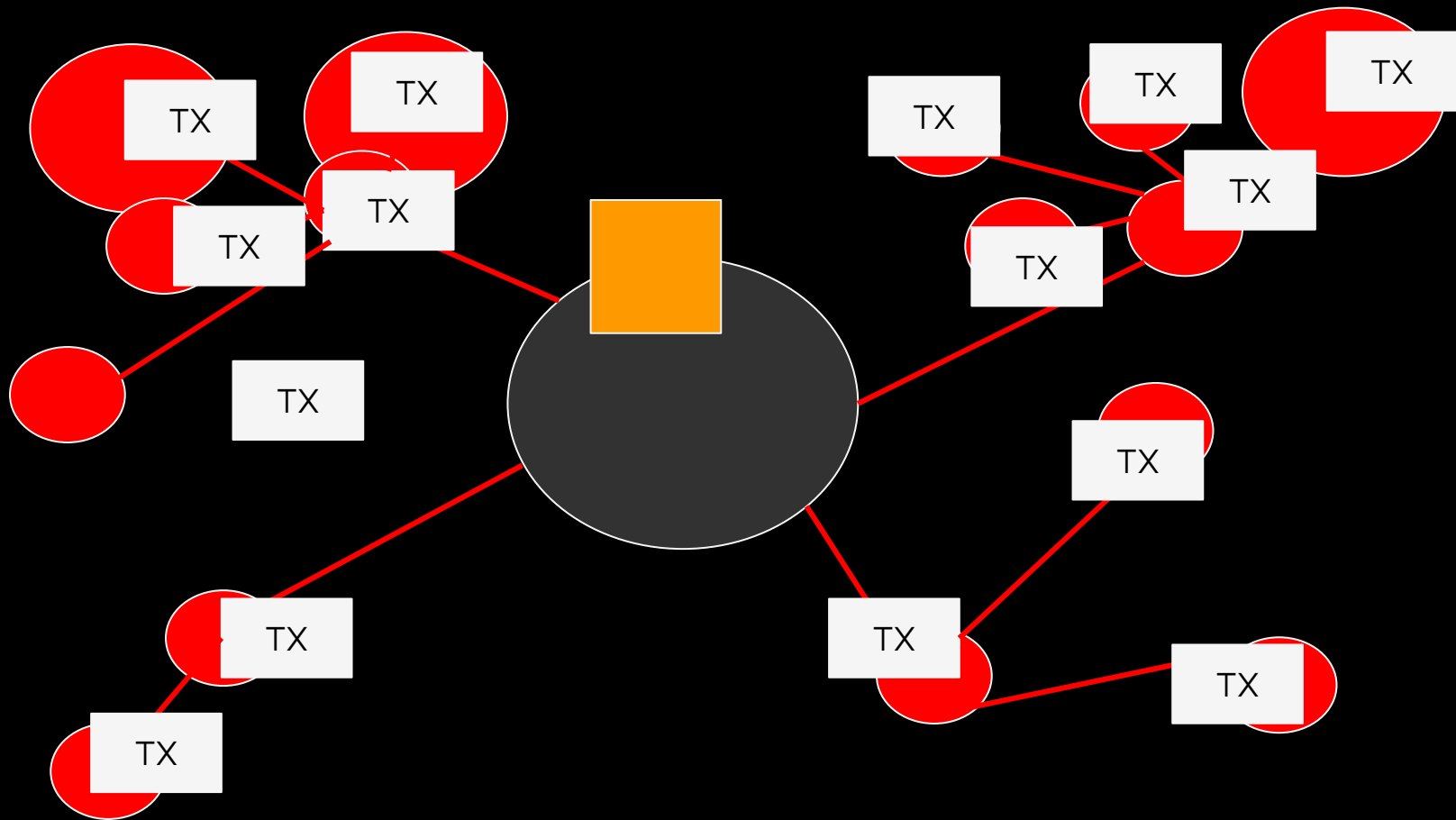
Why Use the Mempool?

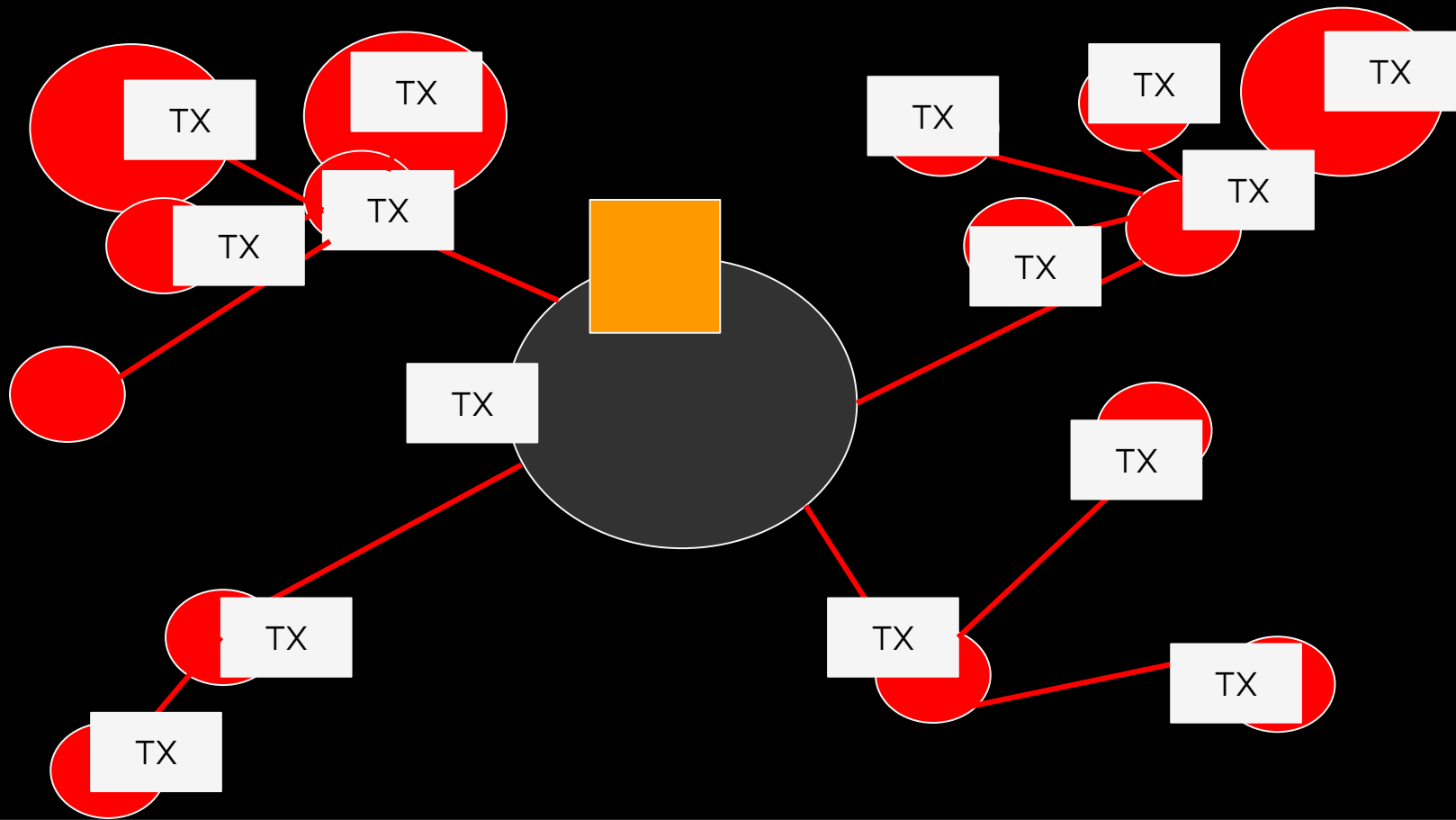
Know what Fees Are
Being Paid

Speed Up Block
Propagation









Why Use the Mempool?

Know what Fees Are
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Speed Up Block
Propagation

Why Use the Mempool?

Know what Fees Are Being Paid

Speed Up Block Propagation

Make Mining Accessible

Why Use the Mempool?

Know what Fees Are Being Paid

Speed Up Block Propagation

Make Mining Accessible



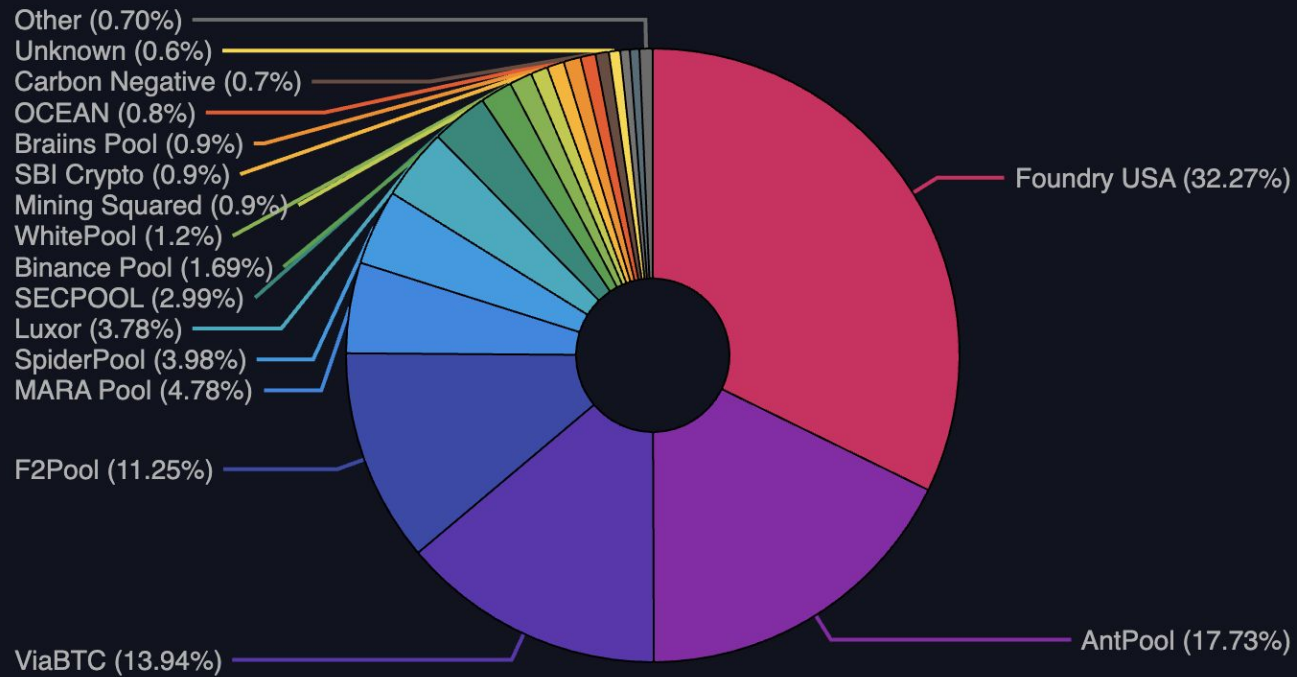
Why Use the Mempool?

Know what Fees Are Being Paid

Speed Up Block Propagation

Make Mining Accessible

Decentralization



How We Can Make the Mempool Matter

How We Can Make the Mempool Matter

Decentralize Block Construction

How We Can Make the Mempool Matter



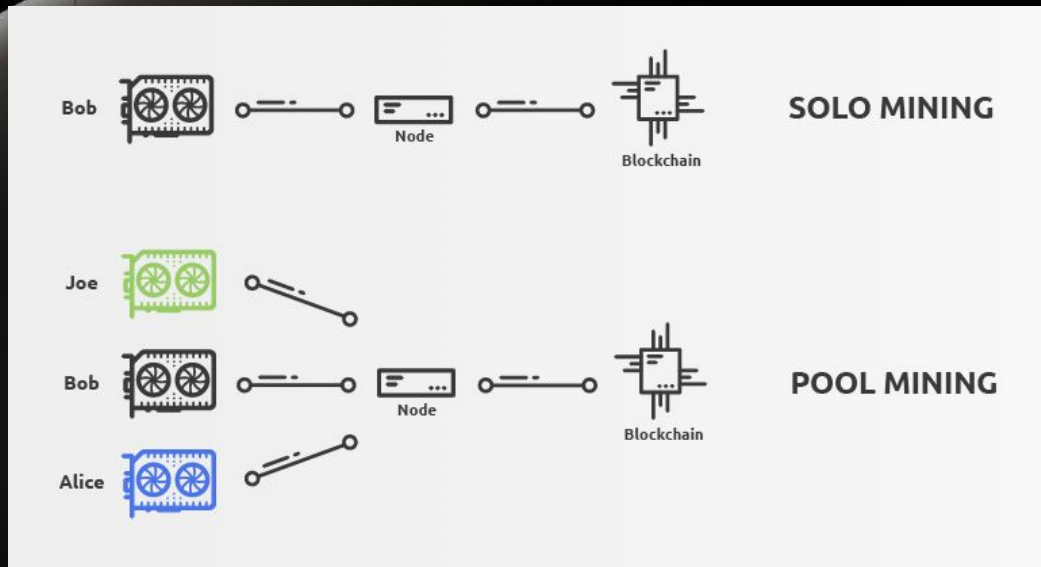
Decentralize Block Construction

How We Can Make the Mempool Matter



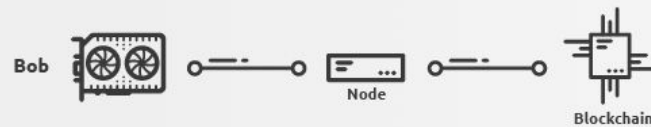
Decentralize Block Construction

How We Can Make the Mempool Matter

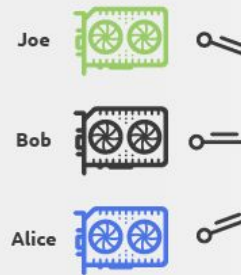


Decentralize Block Construction

How We Can Make the Mempool Matter



SOLO MINING



POOL MINING



Decentralized Blockchain

@niftynei

@niftynei

now

Venkatesh Rao

Sufficiently motivated reasoning is indistinguishable from lying



 [Edit profile](#)

nifty (btc++ atx may 7-9) 

@niftynei

orange-pilled postrat; markets maxi; veblen fan. teaches [@base58btc](#)  
hosts [@btcplusplus](#)  runs [@core_LN](#) 

 ATX  [btcp.dev](#)  Joined March 2009



@niftynei
@base58btc

@niftynei
@base58btc

the bitcoin protocol
is complicated

Base58   unlocks it





Following

Base58: software eng on a bitcoin standard

@base58btc Follows you

Base58 is a software engineering school built on the bitcoin standard. We offer online + in-person classes. HQ'd at @pleblab; @niftynei is mainly responsible

 Texas  base58.school  Joined June 2021

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