Na Mmiri Raindrop:
Nyocha Ọha Mmadụ Na Blockchain

Jenụwarị 2018

TEBULU ỌDỊNAYA

Ajuju

Mmiri: Etymology - site na Grik oge ochie ὑδρο- (*hudro-*), site ὕδωρ (*húdōr*, "Mmiri")

Mmiri na-eme ka usoro ndị ọzọ dị ọhụrụ na-ejikọta ma kpochapụ ihe ndị a na-apụghị ịgbanwe agbanwe ma na-agbanwe agbanwe nke mkpọchi nke ọha na eze iji mee ka ngwa na nchekwa ederede, njikwa njirimara, azụmahịa, na ọgụgụ isi.

N'ime akwụkwọ a, a ga-eme usoro maka usoro nzuzo, dị ka API, iji nweta mgbakọ nke mmiri Hydro iji mee ka nchekwa site na nkwenye ọha na eze.

A na-akpọ nkà na ụzụ a na-akpọ "Raindrop" - azụmahịa nke a na-arụ site na nkwekọrịta dị irè nke na-akwado usoro nchịkwa onwe ya n'ihu ọha, ma nwee ike imezi ụzọ nyocha nzuzo nke dịnụ. A na-ezube teknụzụ iji nyekwuo nchebe maka data nchịkwa ego nke na-arịwanye elu na ihe ize ndụ site na hacking na ntiwapụ.

A na-arụ ọrụ mbụ nke Mmiri Raindrop na Hydrogen API Platform. Nke a nwere ụdị nke API dị maka ụlọ ọrụ na ndị mmepe n'ụwa nile iji chepụta, wuru, nwalee, na ịmepụta ngwanrọ na nkà na ụzụ akụ na ụba.

A ga-eme ka Hydro Raindrop dị ka ndị na-emepụta ụwa dị ka ndị na-emepe emepe, na-enye ndị na-emepe emepe ike ijikọta Hydro Raindrop na ihe ọ bụla REST API.

Blockchain & Ethereum

A na-emeju mmiri na netwọk Ethereum. Tupu inye nkọwa zuru ezu na ọrụ ahụ, ọ dị mkpa ịghọta ụfọdụ echiche bụ isi banyere blockchain na Ethereum.
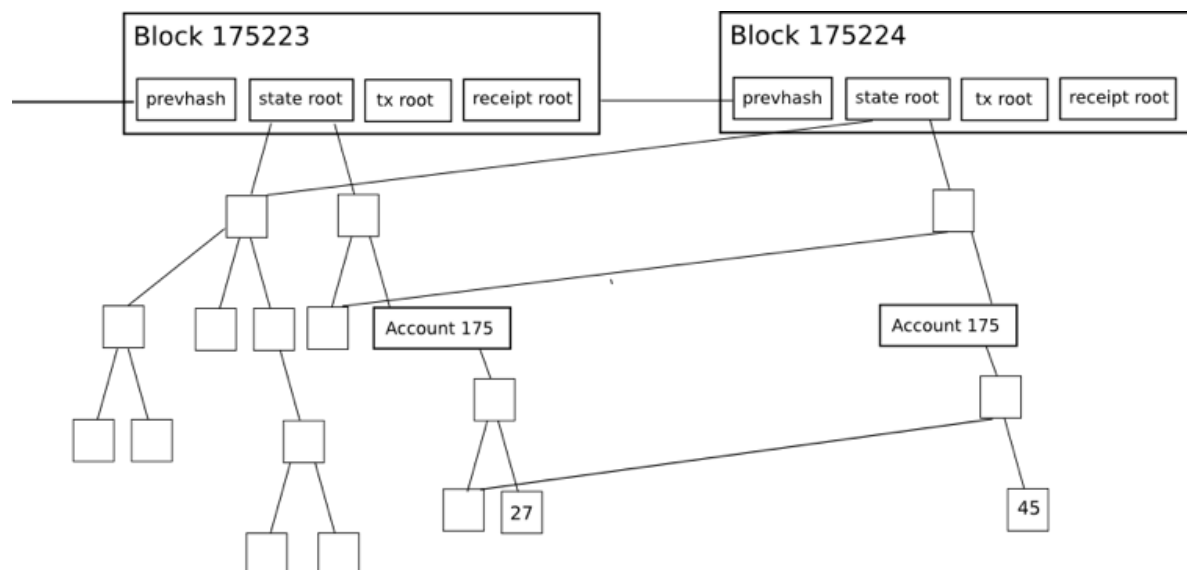
Owuwu na Ethereum

Dịka ngwa ngwa dị ka Snapchat wuru na Swift na ngwaọrụ ndị ọzọ e nyere n'elu usoro iOS iOS, ya mere, a pụkwara ịme ngwa ngwa ngwa na n'elu Ethereum. Snap Inc. adịghị mkpa iji wuo iOS, ọ na-eji ya dị ka ihe akụrụngwa iji malite ngwa ngwa mgbasa ozi na-agbanwe agbanwe.

Project Hydro yiri ya. Ọ na-adabere n'ọtụtụ puku ndị mmepe n'ụwa nile na-arụ ọrụ iji mee ngwa ngwa ngwa ngwa ngwa ngwa ngwa ngwa, ike, na ịrụ ọrụ nke ọma. Mmiri na-eme ka ọ dịwanye mma site n'inwe mmekọrịta mmekọrịta na ngwaahịa na ngọngọ blockchain nwere ike inye uru bara uru maka ọrụ ego.

Merkle Osisi

A na-eji osisi Merkle mee ihe na mpaghara ndị a kesara iji gosipụta nkwenye data. Ha na-arụ ọrụ ọma n'ihi na ha na-eji mpempe akwụkwọ karịa faịlụ zuru ezu. Hashes bụ ụzọ nke faịlụ ndị na-agbanwe agbanwe nke dị ntakịrị karịa faịlụ ahụ n'onwe ya.

Onye isi ntanetị ọ bụla na Ethereum nwere atọ Merkle maka Ọrụ, Nweta, na ekwu:

Nke a na-eme ka ọ dị mfe maka onye inweta ìhè ka o nweta azịza ndị a na-enyocha na ajụjụ, dị ka:

- Ihe ndekọ a dị?
- Kedu ihe nhazi ugbu a?
- Enwerela azụmahịa a n'otu mkpọchi?
- Enwere otu ihe mere na adreesị a taa?

Nkwekọrịta Smart

Echiche doro anya nke Ethereum nyere na netwọk ndị ọzọ na-ejikọta blockchain bụ nke nkwekọrịta aghụghọ. Ndị a bụ nkwụsị koodu nke ọtụtụ ndị ọzọ nwere ike imekọrịta, na-ebelata mkpa ọ dị maka ndị na-atụkwasị obi. E nwere ike ịhụ koodu dị na mgbagwoju anya dị ka iwu nke iwu na akwụkwọ nkwekọrịta omenala, ma ọ pụkwara ịmepụta ọtụtụ ọrụ ndị ọzọ. Usoro nkwekọrịta nwere ike ịnwe iwu, ọnọdụ, ahụhụ maka ndị na-abụghị ndị nnabata, ma ọ bụ nwere ike ịbanye usoro ọzọ. Mgbe akpalitere, nkwekọrịta na-eme dịka e kwuru na mbụ n'oge nkenye na nha ọha na eze, na-enye ihe ndị nwere ike ịmepụta ma ọ bụ ikpochapụ.

Nkwekorita amara bụ ngwá ọrụ dị mkpa iji wuo ụlọ ọrụ Ethereum. A na-arụ ọrụ dị omimi nke oyi akwa blockchain site na nkwekọrịta omenala, dịka a tụlere na nke a na akwụkwọ a.

Ethereum Arụmọrụ Igwe

Igwe na-ekpochapụ Ethereum (EVM) bụ oge na-agba ọsọ maka azụmahịa dị mma na Ethereum. EVM na-enye aka gbochie mwakpo Ịjụ Ọrụ (DoS), na-eme ka mmemme na-anọgide na-enweghị ntụpọ, na-enyekwa ohere nkwurịta okwu nke a na-apụghị ịkwụsị. Omume na EVM nwere ihe jikọrọ ha na ha, nke a na-akpọ gas, nke dabere na ihe nchịkọta nke achọrọ. Ọ bụla azụmahịa nwere oke ego nke gas e nyere ya, a maara dị ka ókè gas. Ọ bụrụ na gas nke azụmahịa meriri, ọ ga-akwụsị ịmalite nhazi.
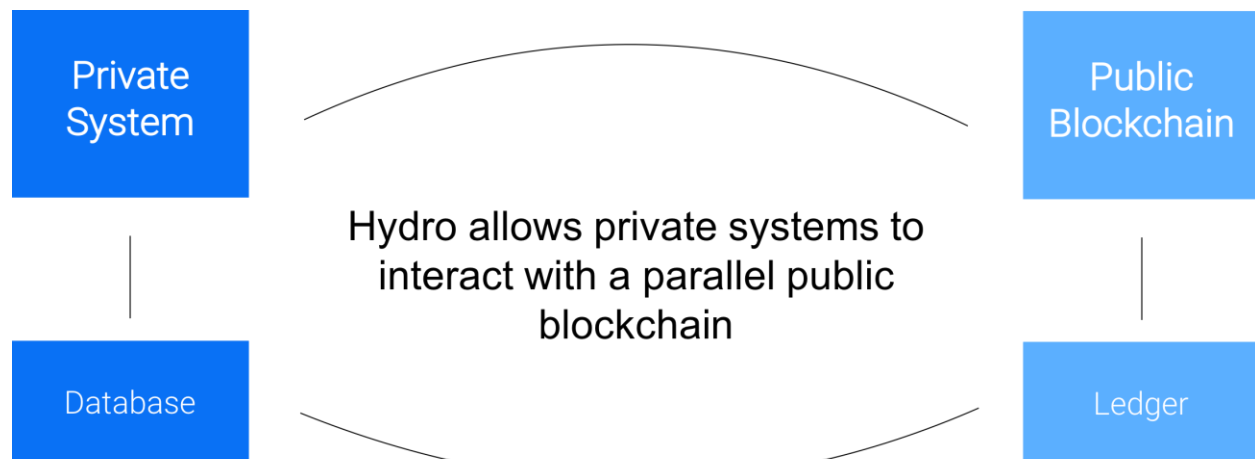
Nchịkọta Oha

E nwere ike ịkọwa usoro ndị nwere ike ịnweta ọrụ ntanetịime ego, weebụsaịtị, na ngwa dịka ndị na-ajụ data - ha zipụ, weghachite, chekwaa, melite, ma dezie data maka ụlọ ọrụ ha na-ejikọta. N'ihi ọdịdị nke data a, na nke ọrụ ego karịa n'ozuzu ha, usoro ndị a na-ejikarị arụ ọrụ dị mgbagwoju anya n'ụzọ dị iche iche. Ịdabere na ụlọ ndị ọzọ, n'aka nke ya, mepee ọnụ ụzọ maka ichebe nchebe, nghọta, na nhazi arụmọrụ ka ọ bụrụ site na ịmekota ike ndị dị n'èzí gafere karịa iru nke esịtidem.

Otú ahụ ka ọ dị na Hydrogen's API Platform. Mmiri na-achọ ịbanye n'ime uru ndị ahụ e kwuru na mbụ site n'ikwe ka ndị ọrụ Hydrogen jiri interface na-eme ka ha nwee ike ịchọta ihe dị iche iche na-ejikọta aka na mbara igwe.
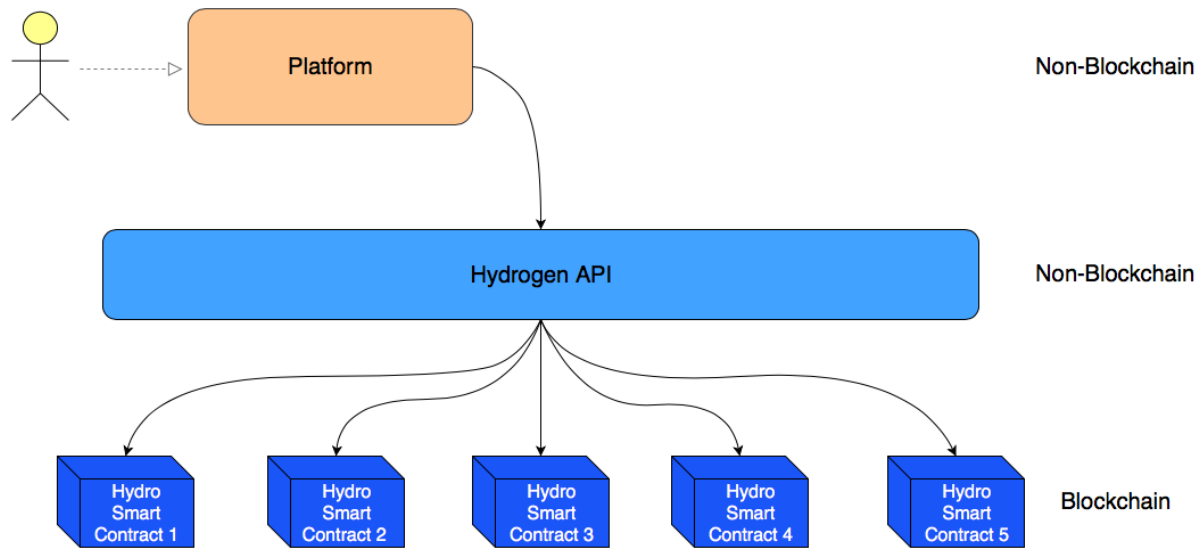

Arụmọrụ na-ejikọta na blockchain nwere ike ime tupu, n'oge, ma ọ bụ mgbe arụmọrụ nzuzo. Mkparịta ụka dị n'etiti ndị mmadụ na ọha na eze nwere ike ịmepụta, stampụ, idekọ, ma ọ bụ melite usoro n'ime mpaghara.

Ọdịdị nke ihe nlereanya a na-eme ka usoro dị ike karị site na ịbanye n'ime uru nke teknụzụ blockchain kpọmkwem ebe ọ nwere ike ịmepụta mmetụta kachasị mma. Ọ bụ ezie na ngwungwu ngwakọ a enweghị ike ịdakwado nyiwe niile, Hydro na-elekwasị anya n'inye uru maka ikpe ndị ọ bụ.

Ndi na-emepụta ụlọ

Mmiri dị iche na ọtụtụ nchịkọta blockchain dị ugbu a, n'ihi na ọ nwere ike ịdị na-anọghị onwe ya na oyi akwa gburugburu usoro ọhụrụ ma ọ bụ nke dị na ya n'enweghị ihe ga-agbanwe agbanwe. Kama iji dochie ya, Mmiri na-achọ imewanye. Usoro ntanetị na ụlọ ọrụ ndị ntinye na API hydrogen nwere ike ịnweta ụdị ngọngọ na-akpaghị aka.

Akụkụ nke usoro ntanetị ego nke nwere ike ịmepụta Hydrogen sara mbara.
Ngwukọrịta ndị a nwere ike ịmị ike ọ bụla ahụmahụ, ụlọ ọ bụla ọnụahịa nke
ọrụ, rụọ ọrụ nzuzo ọ bụla, ma tinye ya na gburugburu ebe ọ bụla. Nke a na-
enyere Hydrogen aka ịhazi ya na sydro na Hydro, na-arụ ọrụ dịka onye ọkwọ
ụgbọala na-akwado ya.

Raindrop

Ejiri n'elu mmiri a na-akpọ ọha na eze bụ ọrụ nyocha nke dabeere na blockchain, nke a na-akpọ "Raindrop." Nke a na-enye otu ihe nchebe dị iche iche, nke a na-apụghị imeri emeri, nke ụwa dum nke nchebe nke na-egosi na arịrịọ ọbịbịa na-abịa site na isi iyi ikikere.

Usoro nyocha nzuzo nke onwe dị ka OAuth 2.0 na-enye ọkwa dị iche iche nke siri ike na uru maka ụdị dị iche iche nke okwu dị. Enwere obere mkpa ịsọ mpi ma ọ bụ gbalịa iji dochie usoro iwu ndị a - Hydro na-enye ụzọ iji mee ka ha dị mma site n'ime ka mwepụta mechanical blockchain dị ka akụkụ nke usoro nyocha. Nke a nwere ike ịgbakwunye ihe nchekwa bara uru nke nche iji nyere aka igbochi usoro nbibi na data kwekọrịtara.

Tupu ị nyochaa akụkụ ndị ọkachamara nke Raindrop, ka anyị burugodị ụzọ lelee nsogbu ọ na-agbalị iji dozie. *Ọnọdụ nke nchekwa ego*

Ọganihu nke afọ data ebutewo na ọ na-ebuli ike, nke a dị mkpa karịsịa maka ọrụ ego. Nkọwa ego na-abụkarị ọnụ ụzọ dị ukwuu nke data nzuzo na nzuzo dịka nọmba nọmba gọọmentị, asambodo akaụntụ, na akụkọ ihe mere eme. N'ihi otú nkatọ si dị mkpa na data a, enwere ike ịnweta ohere a na-ejighị n'aka na-ebute na nsonaazụ ọdachi.

Onye oru nyocha oru ahia Trend Micro [bipụtara akụkọ](#) achọtara ihe ndị e zuru ezu bụ Ozi nke Onye Na-ahụ Maka Onwe Ya (PII) ka a na-ere na Web Deep maka ihe dị ka $ 1, nyochaa akwụkwọ dịka akwụkwọ ikike iji nweta ihe dị ka $ 10, na nzere nbanye maka ntakịrị $200, na-enye nkesa Ezuru ohi ezubeghi oke na nke a na-achọghi.

O di nwute, ego ugbua adighi enwe ogwu ozo n'enweghi ihe obula mgbe o na-egbochi, ichoputa, na ikwuputa mmebi iwu na ndi ozo.

➢ Dị ka otu nnyocha e mere n'oge na-adịbeghị anya site Javelin Strategy & Research - *Ihe omumu nke 2017* - A zụrụ $16 ijeri ndị na-azụ ahịa U.S. na 156 na 2016 n'ihi ọdịda nke usoro ego iji chebe Ozi nke Onye Na-achọpụta Ihe (PII).

➢ N'April 2017, Symantec bipụtara ya *Akuko Nche Egwu Intanet*, nke a na-eme atụmatụ na ijeri Ijeri PII dị iche iche na-adabere na ikike dịgasị iche iche na 2016.

➢ Nke *2016 Afọ ọgwụgwụ data iro ngwa ngwa* site na Risk Based Security, chọpụtara na mkpọmkpọ ihe dị nde 4,149 bịara n'ụwa na 2016, na-ekpughe ihe karịrị nde 4.2.

➢ Nke *2017 akụkọ Thales data iyi egwu - mmepụta ego*, otu nnyocha nke ndị ọkachamara IT zuru ụwa ọnụ na ọrụ ndị ọkachamara, chọpụtara na 49% nke òtù ọrụ ego nwere nsogbu nchebe n'oge gara aga, 78% na-etinyekwu ego

iji chebe onwe ha, ma pasent 73 na-agbalite mmemme ọhụrụ metụtara AI, IoT, na teknụzụ igwe na ụzụ tupu ị kwadebe ngwọta nchedo kwesịrị ekwesị.

Equifax Mmebi

Na July 29th 2017, Equifax, onye ọrụ nchịkọta akụkọ nchịkọta akụkọ nke US. Umu mmadu iri nde na nde iri abuo na ise bu PII kpughere, tinyere onu ogugu ndi mmadu. Ndị ahịa 209,000 nwere kaadị akwụmụgwọ kaadị akwụmụgwọ.

Kedu ihe kpatara nsogbu a?

Ọ na-amalite na otu n'ime teknụzụ backend nke Equifax jiri. Ebube bụ ihe na-emeghe emepe maka ịmepụta ngwa weebụ na asụsụ mmemme Java, nke Apache Software Foundation wuru. CVE-2017-9805 bụ ihe na-adịghị mfe na Apache Struts metụtara na iji ngwa Struts REST na onye na-enye XStream aka iji nweta ụgwọ ọrụ XML. Ọ bụrụ na eji ya eme ihe, ọ na-enye ohere ka onye na-eme ihe na-enweghị mgbagha nke na-enweghị mgbagha na-agba ọsọ koodu ọjọọ na ihe nkesa ngwa ngwa ma ọ bụ weghachite igwe ma ọ bụ malite ịwakpo ya ọzọ. Nke a bụ Apache ọnwa abụọ tupu agbagha Equifax.

Apache Struts nwere eriri na REST Plugin XStream nke na-akpata ka usoro ihe omume ahụ na-esiteghị na ntinye ederede onye ọrụ na arịrịọ XML. Karịa kpọmkwem, nsogbu ahụ na-eme na usoro XStreamHandler siObject (), nke na-adịghị enye iwu ọ bụla iji gbochie uru ịbịaru mgbe ị na-eji XStream deerialization ghọọ ihe, na-akpata nkwụsịtụ koodu mmebi ọma.

Ọbụna ma ọ bụrụ na mgbakwunye plugin a REST kwụsịrị, ọ kwesịrị ịdị mkpa? Enwere ụzọ iji teknụzụ blockchain iji nweta ozi ego nke ndị ahịa 143 a ma na-adabere na REST API na usoro dabeere na Java?

Na-agbakwunye oyi akwa Blockchain

O doro anya na enwere ike imeziwanye iguzosi ike n'ezi ihe nke ọnụ ụzọ ámá ego. Ka anyị nyochaa otú e si enweta mmiri nchebe ọzọ site na mmiri.

Usoro nkwekọrịta nkwekọrịta nke netwọk Ethereum kwadoro nkwado azụmahịa n'ihi na ndị na-emekọ ihe na-ejikọta azụmahịa ndị e ji aka ha debanye aha. Eziokwu a na-eduga ná njedebe na enweghị ike, ma, ọ dị mkpa karị, ọ na-enye usoro ịchọta mpempe akwụkwọ n'enweghị ikike iji nweta ọnụ ụzọ ámá nke na-ejikwa data nchịkwa.

Site na Mmiri, nkwenye nwere ike ịdabere na arụmọrụ azụmahịa na blockchain. Dị ka ọmụmaatụ, API nwere ike ịhọrọ ịmepụta ndị mmepe na ngwa site na ịchọrọ ha ịmalite azụmahịa kpọmkwem, na ụgwọ data loadloads, n'etiti adreesị dị iche iche na blockchain, dịka nkwekọrịta nke kickstarts usoro nyocha nke njikwa.

Mmiri mmiri dị na Raindrop

Mmiri ozuzo nwere ngwugwu nke mmiri condensed site na 0.0001 ruo 0.005 centimeters na dayameta. Na oke mmiri ozuzo, e nwere ọtụtụ ijeri paịpa ndị a, nke ọ bụla n'ime ha, ọsọ ọsọ, na ọdịdị. N'ihi nke ahụ, mmadụ enweghị ike ịkọwa kpọmkwem mmiri ozuzo. N'otu aka ahụ, azụmahịa ọ bụla nwere ike ịmepụta ihe dị iche iche na-enweghị ike ime ya - ọ bụ ya mere anyị ji akpọ ha Raindrops.

Usoro ntanetị ọrụ ego na-ejikarị iji ntinye ntinye ego iji kwado ozi ahịa. Echiche ahụ dị mfe: usoro ikpo okwu na-eme ka obere nkwụnye ego nke ihe ndekọ ego ụlọ ọrụ nke onye ọrụ. Iji gosi na onye ọrụ ahụ nwere ihe ndekọ ahụ n'ezie, ọ ghaghị ịghaghachi ihe nkwụnye ego ahụ laghachiri n'elu ikpo okwu, bụ nke a ga-emezi. Nanị ụzọ onye ọrụ ahụ ga-esi amata ọnụọgụ ego (ma ọ bụghị ịkọ nkọ) bụ ịnweta akaụntụ akụ na ajụjụ.

Nkwenye nkwado Raindrop na mmiri dị mma. Kama iziga onye ọrụ otu ego ma jiri ya laghachi azụ, anyị kọwaa azụmahịa na onye ọrụ ga-eme ya site na obere akpa a maara. Nanị ụzọ onye ọrụ nwere ike isi rụọ ọrụ azụmahịa bụ site na ịnweta obere akpa na ajụjụ.

Site n'iji Raindrops, ma usoro ahụ na onye na-enweta ya nwere ike nyochaa nnwapụta ikike na ọkwa na-enweghị atụ. Akpadoro azụmahịa a nke blockchain site na nkwekọrịta usoro ihe omume, na-apụta na netwọk kesara, ma dabere na ikikere nke igodo nzuzo. Ya mere, ọ na-eje ozi dịka ezigbo ngwa ngwa.

Anya zuru ezu

Enwere mmadụ anọ dị n'ime usoro nyocha nke mmiri:

1. *Nbudata* - Ndị otu na-anwa ịnweta usoro. N'ihe gbasara Hydrogen, onye na-enweta ya bụ ụlọ ọrụ ego ma ọ bụ ngwa na-eji hydrogen API maka isi ihe omimi ya.
2. *Sistemụ* - Usoro ma ọ bụ ọnụ ụzọ nke Accessor ga-enweta. Maka hydrogen, usoro ahụ bụ Hydrogen API n'onwe ya.
3. *Mmiri* - Ngwakọta ahụ nke System na-eji na-ekwurịta okwu na interface na blockchain.
4. *Blockchain* - Achịkọta ọha na eze a na-ekesa nke na-arụ ọrụ azụmahịa MMIRI ma nwee ihe mgbagwoju anya Hydro, site na nke a nwere ike ịmegharị ihe ọmụma, dọpụta, ma ọ bụ arụ ọrụ.

Raindrop ọ bụla, n'ozuzu ya, bụ mpaghara nke ise azụmahịa:

1. *Ezipụ* - Adreesị nke ga-ebute azụmahịa ahụ.
2. *Onye natara* - njem nke azụmahịa. Nke a kwekọrọ na-akpọ usoro na Hydro smart nkwekọrịta.
3. *ID* - Ihe nchọpụta nke ejikọtara na System.
4. *Onu ogugu* - Onu ogugu nke MMIRI ka iziga.

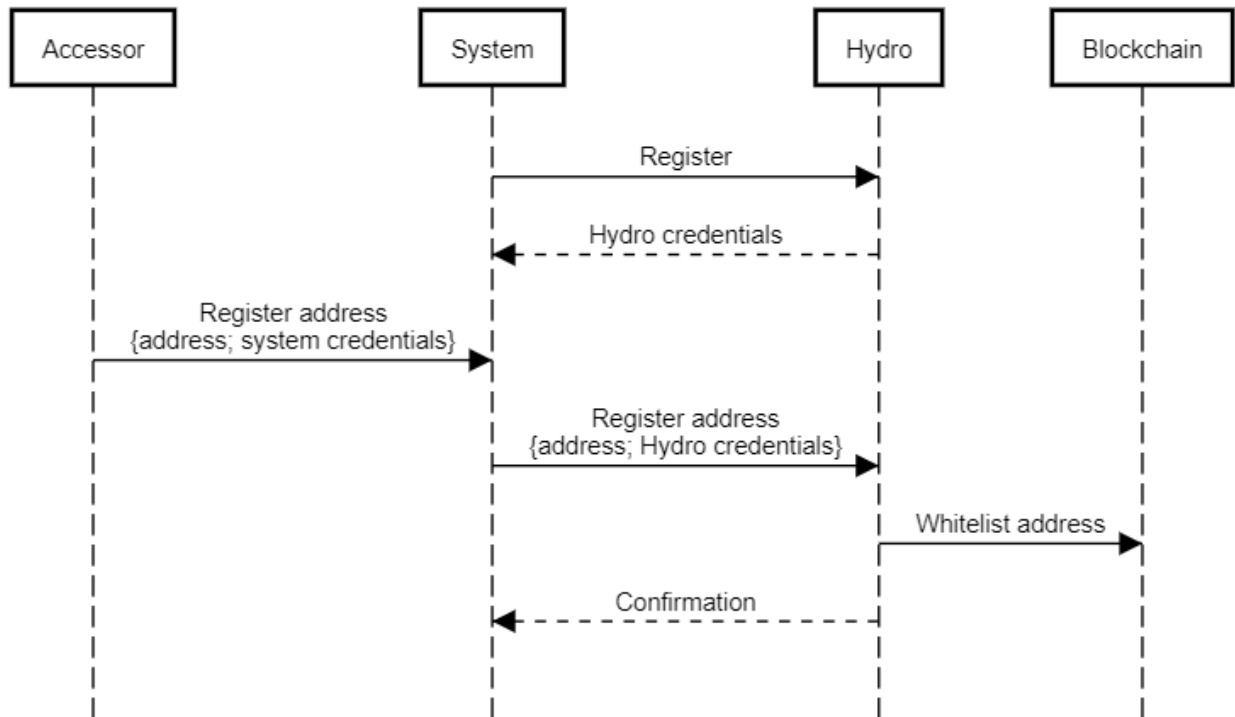5. *Ihe ịma aka – A na-emepụta eriri mkpụrụ ndụ alphanumeric.*

N'okpuru ebe a bụ nkọwa nke usoro nyocha, nke a ga-enwekarị ịhazi n'ime atọ:

1. Nhazi
2. Raindrop
3. Ndebanye aha

Nhazi site na usoro (dika Hydrogen) na-edebanye aha iji mmiri na inweta nzere, na-enyere usoro ahu aka ikwurita okwu na blockchain site na modulu Hydro. The onboards System Accessor (dịka akwụkwọ ego) nke na-edebanye aha ọha na eze, wee nyefee adreesị ndekọ ahụ maka Mmiri. A na-edebanye adreesị a n'ekweghị aka na blockchain ka a na-edozi na nchekwa nke ọma. Usoro ahụ na-enweta nkwenye na adresịrị adreesị ahụ, nke nwekwara ike ikwenye dịka ihe omume ememe ochie. Nanị ndebanye aha na-eme naanị otu ugboro, ebe ọ bụ na ọ bụ naanị Accessor ga-adị mkpa.
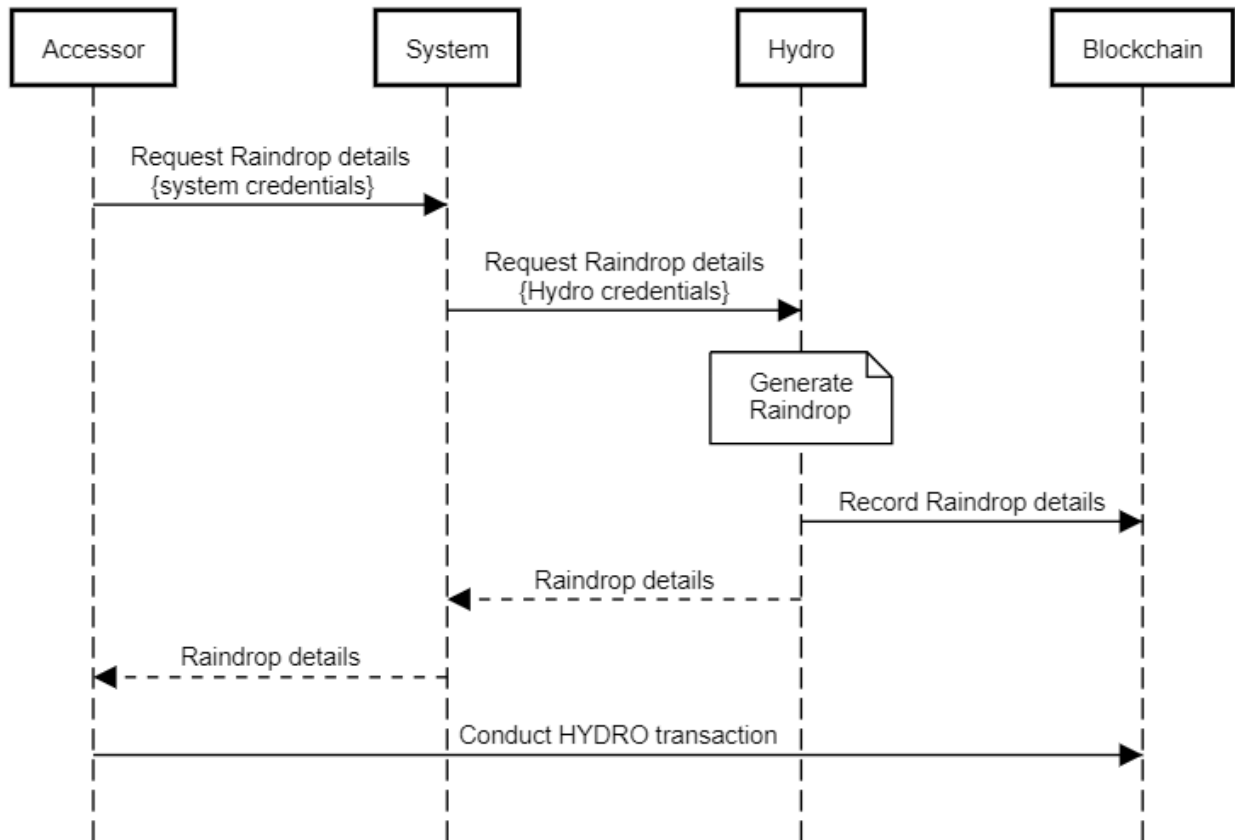
Authentication with Hydro: Initialization

Mgbe ntọala zuru ezu, isi nke usoro nyocha nke mmiri nwere ike ịmalite. Onye na-enweta, onye ga-arụ ọrụ azụmahịa Raindrop, na-ebido malite usoro a site na ị rịọrọ Raindrop nkọwa site na usoro ahụ, usoro ahụ na-ebutekwa rịọ mmiri. Mmiri na-enye ọhụrụ Raindrop, na-echekwa ụfọdụ nkọwa na-enweghị ike na blockchain, ma weghachite nkọwa zuru ezu maka ngwa ahụ site na usoro ahụ. Onye nnweta ahụ, nke nwere ihe niile achọrọ, na-eduzi azụmahịa site na adreesị ahụ e debara aha ya na usoro dị na nsụgharị igwe. Ọ bụrụ na agbadoghị adreesị ahụ, a jụrụ ihe ahụ - ma ọ bụghị ya, edere ya na nkwekọrịta dị mma. Ọ dị mkpa iburu n'uche na azụmahịa a ga-eme na mpụga nke usoro ahụ, site na nnweta ahụ na Blockchain, ebe ọ ga-abanye aka na igodo nzuzo nke onye ahụ (nke naanị onye nwere ike ịnweta).
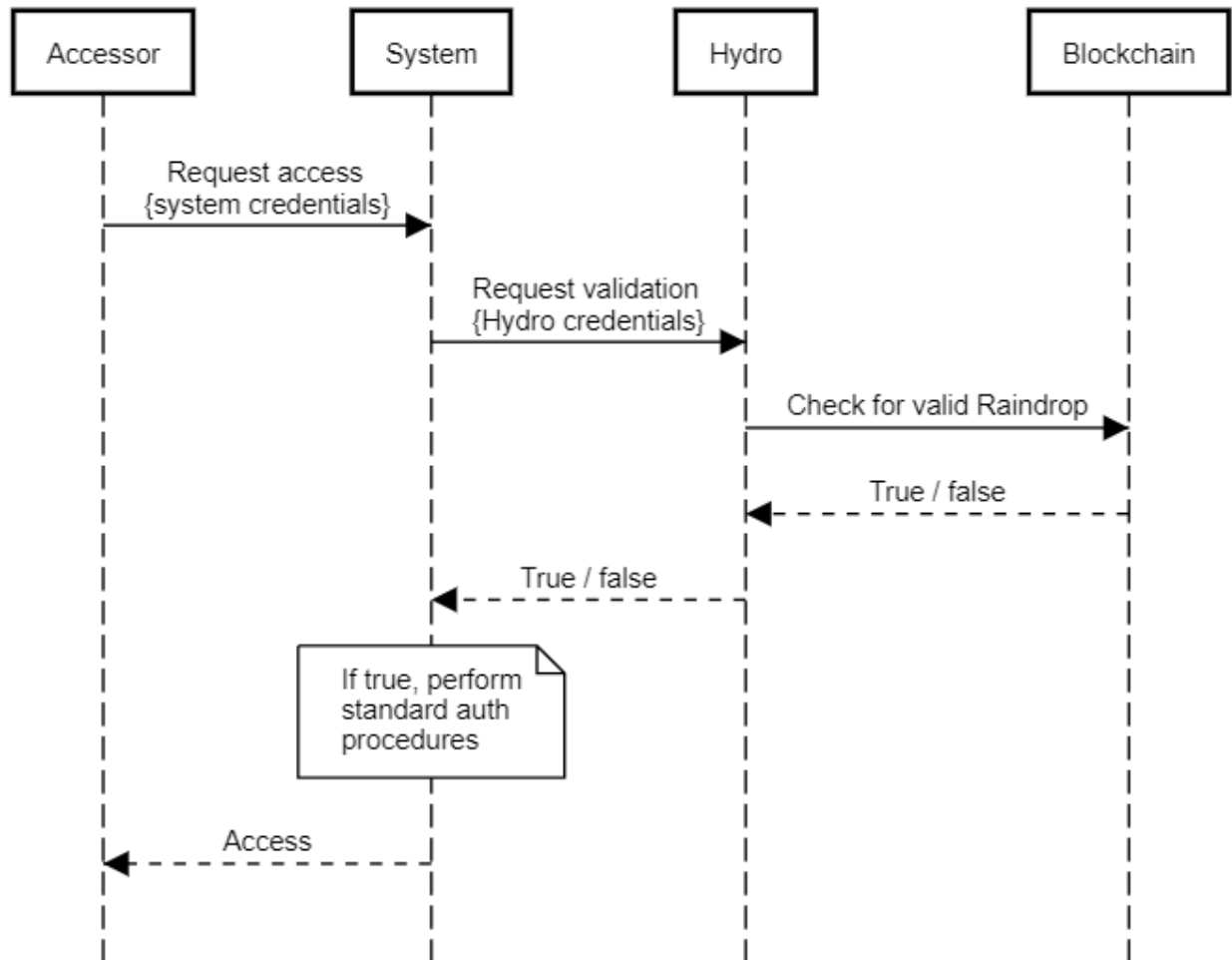
Authentication with Hydro: Raindrop

Nzọụkwụ ikpeazụ nke usoro a bụ nkwado. Na nke a, onye nnweta ahụ na-arịọ ka
ịnweta usoro ahụ site na usoro usoro nke usoro. Tupu imejuputa atumatu o bula
nke usoro ozo nyocha ya, usoro a choro mmriri ma obu onye ozo enweghi oru
ahia Raindrop. Ebute mmiri site na nkwekọrịta dị mma, nyocha maka irè, ma
jiri eziokwu / ụgha aha ya. Usoro ahụ nwere ike ikpebi otú ọ ga - esi malite
dabere na nhọpụta a - ọ bụrụ na ọ bụ ụgha, usoro ahụ nwere ike ịgọnahụ ohere,
ma ọ bụrụ na ọ bụ eziokwu, usoro ahụ nwere ike inye ohere.

Authentication with Hydro: Validation

Ọ bụrụ na anyị na-atụle usoro nhazi usoro ihe – ma ọ bụ ihe ọ bụla usoro
usoro usoro dị ugbu a – iji mee ka ọ bụrụ otu ihe kpatara nyocha, ọ dị mkpa
na nchekwa hyde ahụ na-enye ihe abụọ bara uru. Site n'inyocha ihe isi ike
abụọ nke agha, anyị nwere ike igosi na ọ bara uru:

- Vector 1 - Onye na-awakpo na-ezuru ihe nchịkwa nke ụlọ ọrụ ahụ
    - Onye mmegide na-anwa iji nweta usoro ahụ yana usoro nhazi dị mma
    - Usoro nyochaa na mmiri iji chọpụta ma ọ bụrụ na e mekọrịta
      azụmahịa dị mma na blockchain
    - Mmiri na-alaghachi azụ, na usoro na-agọnahụ ohere

- Vector 2 - Onye na-awakpo na-apụnara isi nke onwe ya na obere akpa ego
    - Onye na-awakpo na-anwa ịmepụta azụmahịa azụmahịa site na adreesị
      e debara aha, na-enweghị mkpa Raindrop nkọwa
    - Onye mbuso agha enweghị ike ime azụmahịa azụmahịa
    - Onye mmegide enweghi ike ịrịọ ohere banye na usoro n'enweghị
      ezigbo usoro nzere

O doro anya na Onye Mmegide aghaghị ịzụta ma ọ bụ nchịkọta usoro nchịkwa na isi akpaaka nke ịnweta ahụ iji nweta usoro. Na nke a, Mmiri emewo nke ọma gbakwunyere ihe ọzọ nke nyocha.

Imeghe Raindrop n'ihu ọha

Ọ bụ ezie na e depụtara ọrụ nyochaa nke blockchain nke a iji nyere aka mee ka e nwee usoro ihe omumu nke hydrogen API, ọ na-ejikọta ya na nhazi dị iche iche na usoro. N'ihi na anyị chere na ndị ọzọ nwere ike ịmalite irite uru site na nkwenye nkwenye a, anyị na-emeghe ya maka ojiji.

Dịka Hydrogen ga-ejikọta ya dị ka ihe nkwekọrịta maka ịnweta mpaghara ebumnuche API, ya mere, usoro ọ bụla nwere ike itinye ya na usoro na usoro ozo. Ihe ọ bụla n'elu ikpo okwu - ya bụrụ API, ngwa, software nke ụlọ ọrụ, ihe ntanetị egwu, wdg. - nwere ike ịmepụta mmiri maka ihe nyocha. Akwụkwọ a ga-ede akwụkwọ dị na GitHub maka ndị chọrọ ịmejupụta oyi akwa blockchain ahụ n'ime ihe nyocha ma ọ bụ API REST.

Ọmụmụ ihe – Raindrop Na OAuth 2.0

E nwere ụzọ dị iche iche a pụrụ isi mee ka ndị nwere onwe ha nwee ike ịhapụ ha. Ndị API ndịọrụ, ọdụ data, na netwọk emepụtala ọtụtụ usoro nke akara, igodo, ngwa ọdịnala, na ogbugba ndu n'ime afọ iri gara aga, iji gbalịa iji nweta data nchịkwa. Dị ka ihe atụ, Google ghọrọ otu n'ime ndị na-eweta ngwaahịa na-ewu ewu na ahịa na ngwa Google Authenticator. Dịka e kwuru na mbụ, enweghi ihe kpatara ị ga-eji merie ma ọ bụ dochie anya usoro iwu ndị a.

Dị ka ihe gbasara ọmụmụ ihe, ebe a bụ nkọwa dị nkenke banyere otú Hydrogen si eme ihe ngosi nke mmiri dị ka nchekwa nchekwa na n'ozuzu usoro nchedo API:

1. Ndị mmekọ API hydrogen aghaghị ibu ụzọ nweta adreesị IP nke gburugburu ebe dị iche iche.
2. Ndị mmekọ ga-achọ ka whitelist bụrụ adreesị mmiri ọha.
3. A na-akpọ oku nile na API Hydrogen na nnyefe data na ezoro ezo na ebute site na protocol HTTPS.
4. Ndi mmadu aghaghi imezue ahia ahia mmiri site na adreesị aha mmiri aha.
5. Ndi mmadu kwesiri iji OAuth 2.0 nkwado. OAuth (ikike oghere) bụ ihe na-emeghe maka nyocha na ikike. Hydrogen na-akwado "Ihe Ntuziaka Paswọdu Onye Nchịkwa" na "Ndị Nwee Ihe Nlereanya" ikike, na onye ọrụ ọ bụla API ga-enye nzere maka arịrịọ nyocha.
6. Ọ bụrụ na ọ dịghị otu n'ime ihe ise dị n'elu a na-emebi, a na-enye onye ọrụ Hydrogen otu ihe akaebe pụrụ iche, ka a nyocha ma kwenye na oku ọ bụla API.
7. Ihe akara ahụ dị irè maka awa iri abụọ na anọ, mgbe nke ahụ gasịrị, onye ahụ ga - emerịrị onwe ya ọzọ.

Ọ bụrụ na ọ bụla n'ime usoro ndị a mebiri, onye ọrụ ahụ na-egbochi ozugbo site na ịnweta ohere API. Onye na - enweghị ihe ọ bụla nwere ike ịfe ihe nchebe ndị a site na ịkọwa n'ezoghị ọnụ, n'ihi na e nwere ọtụtụ puku ihe dị iche iche.

Ihe nyocha nke dabeere na mmiri hydrochain bụ akụkụ dị mkpa nke usoro nchekwa Hydrogen. Òtù Mmiri Hydrogen na-agba ndị mmekọ ume ịmepụta ọtụtụ wallets multi-signature, ma chekwaa igodo onwe ha n'ọtụtụ ebe echekwara onwe ha site na nzere ndị ọzọ, ya mere, ọ dịghị otu isi nke ọdịda. Inwe ego nke ọma iji nweta obere obere akpa ego ọ bụghị nanị na o siri ike ịzuru, mana ọdịdị ọha mmadụ nke blockchain na-enyekwa ohere maka ngwangwa ngwa ngwa nke ohi ọ bụla na-emetụta nchebe nke API.

Onye ọ bụla nwere ike ịlele nyocha ọrụ nyocha iji rụọ ọrụ na Hydro smart nkwekọrịta, nke pụtara ụbọchị nke nyiwe na-eme ka ụwa ruo ọgwụgwụ nwere ike ịbụ ihe n'oge gara aga. A pụghị igbochi ndị omempụ API ugbu a site na ikike nke ịchọpụta ikike ikike na-atụghị anya ya na oge, site n'ebe ọ bụla ụwa.

Ihe ize ndụ

Dịka ọganihu ọ bụla dịka ntanetị ọ bụla, dị ka oge mbụ nke mgbasa ozi, ozi-e, na ịnweta ngwa (nke na-adabere n'ịdị na-ejikọta ọnụ), ọ dị mkpa na ndị ọrụ mmepe na-elechi anya ọganihu ọhụrụ na ọsọ ọsọ ọsọ ọsọ na Ethereum. Ị nwere ike iche n'echiche YouTube na-agba mbọ ịmalite na 1995? Ma ọ bụ Instagram na-ebu ụzọ nye Blackberry?

Ndị mmepe Ethereum dịka Vitalik Buterin na Joseph Poon kwadoro ya [Plasma: Ụdị Njirimara Kwesịrị Ekwesị nke Kwesịrị Ekwesị](#) nweta nkwalite na usoro Ethereum:

> **Plasma bụ usoro a chọrọ maka mmegide na mmanye nke nkwekọrịta dị mma nke nwere ike ịdaba na ọnụ ọgụgụ nchịkwa nke nchịkwa kwa nkeji (nwere ọtụtụ ijeri) na-eme ka ngọngọ ahụ nwee ike ịnọchite anya nnukwu ego nke ego zuru oke n'ụwa dum. A na-agba mbọ ka ndị ọrụ mgbagwoju anya a nọgide na-arụ ọrụ site na netwọk azụmahịa, nke na-adabere kpam kpam n'elu blockchain ahụ (dịka Ethereum) iji mee ka ntụgharị ọnọdụ nke azụmahịa.**

Ndị ọzọ, dịka Netwọk Raiden, emeela ka ha nweta ihe ngwọta ngwọta nke na-enweghị ike ịmepụta ngwa ngwa na ịkwụsị ụgwọ. N'oge a, Raindrop **ga-etinye obere nsogbu** na usoro Ethereuem, ya mere nzere bụ obere ihe ize ndụ maka ihe ịga nke ọma nke nkà na ụzụ.

Mmechi

Mgbochi nke blockchain ọha na eze na-enye ụzọ ọhụrụ iji bulie nchebe nke usoro nzuzo dị ka API.

Akwụkwọ a egosila ihe atọ dị mkpa:

1. Mgbochi nke ọha na eze nwere ike ịgbakwunye uru na ọrụ ego.
2. Mmiri mmiri Raindrop nwere ike ime ka nchebe nke usoro onwe gị.
3. Enwere ngwa ngwa nke Hydro Raindrop n'ime usoro ikuku Hydrogen API.

Ndị otu mmiri na-ekwere na kpuchie esemokwu ahụ nwere ike ịbụ ihe nnweta nchedo dị iche iche maka ụdị ọhụrụ nke ntanetị nke ọha na eze, nke ga-erite uru nye ndị niile nwere aka na ụlọ ọrụ ego na ihe karịrị.

Isi ihe:

Ethereum; *Jikọọ na Ethereum*
Trend Micro; *Gịnị Ka Ndị Na-eme Ihe Ngwá Ọrụ Na-eme?*
Javelin Strategy na Research; *Ihe omumu nke 2017*
Symantec; *Akuko Nche Egwu Intanet*
Risk Based Security; *2016 Nkọwapụta nke Ntanetị – Afọ na Nyocha*
Thales; *2017 akụkọ Thales data iyi egwu – mmepụta ego*
Apache.org; *Apache Struts 2 Akwụkwọ - S2-052*
Joseph Poon na Vitalik Buterin; *Plasma: Ụdị Njirimara Kwesịrị Ekwesị nke Kwesịrị Ekwesị*