

Extend Hyperledger Fabric to Support EVM Contract and Web3 Toolings

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show of hands

how many of you...

- are familiar Blockchain?
- have written a DApp on Ethereum?
- have written application on Hyperledger Fabric?

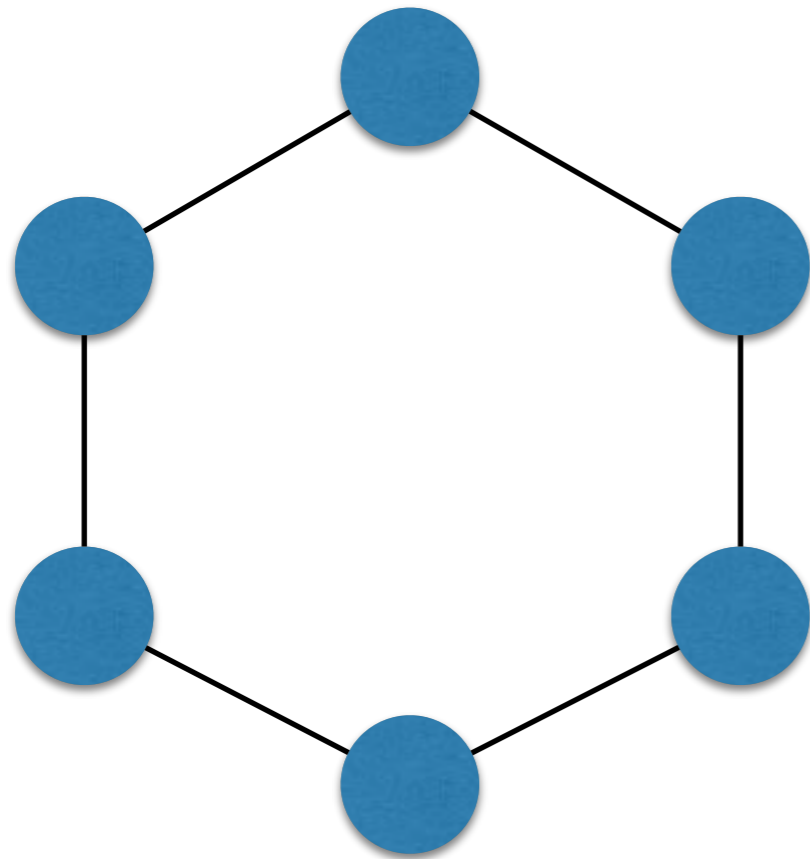
- What is EVM
- Why are we supporting it
- How to use it
- How it's done
- Demo
- Future work

What is EVM?

- Turing-complete stack-based virtual machine
- execute bytecode compiled from high-level languages
- contract-oriented language, e.g. Solidity, Vyper
- bounded by limited gas supply
- reduce attack surface

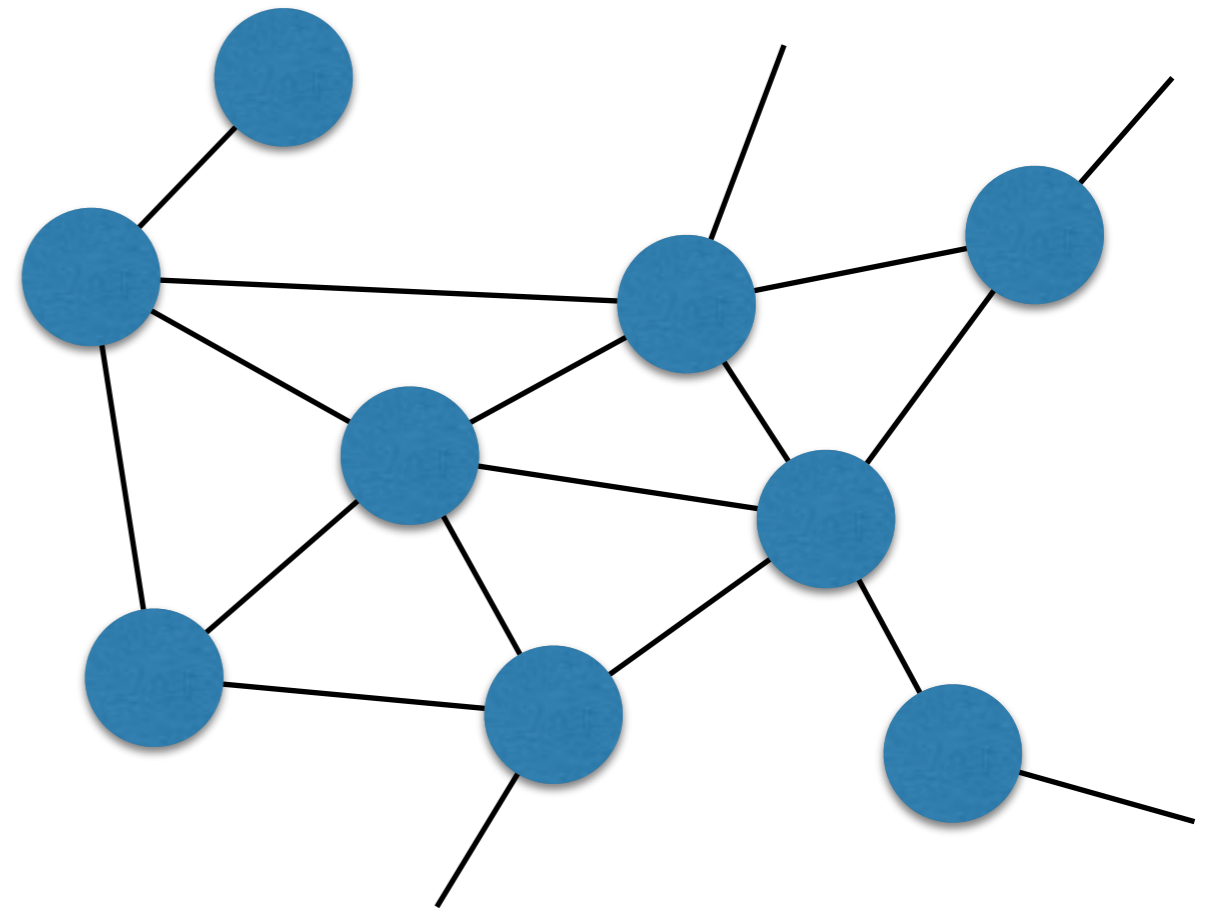
why are we supporting it?

Fabric



Permissioned

Ethereum



Permissionless

“Should I learn another contract-oriented language?”

– Developer from Ethereum

Fabric



Hyperledger Cello

Ethereum



remix



ethereum
name service



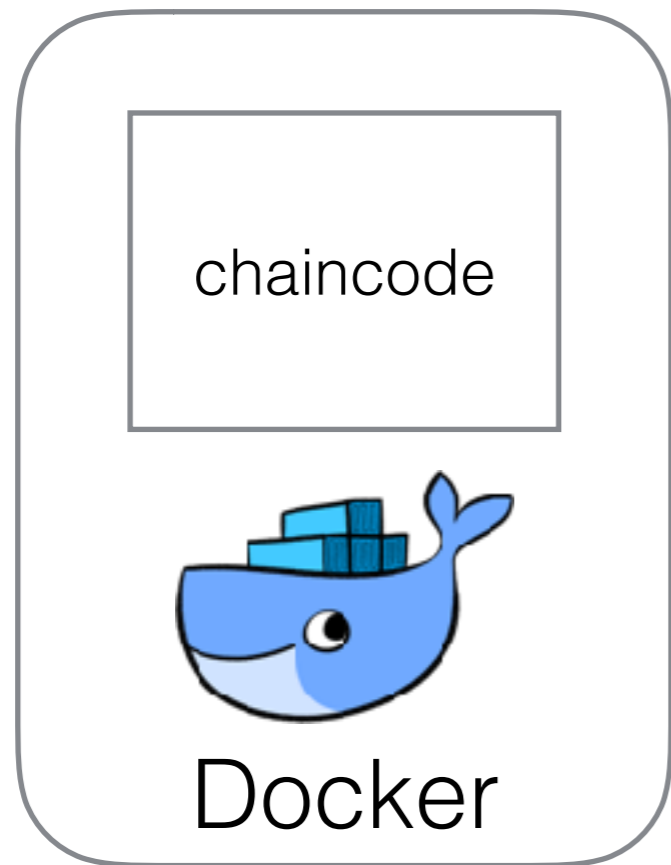
swarm



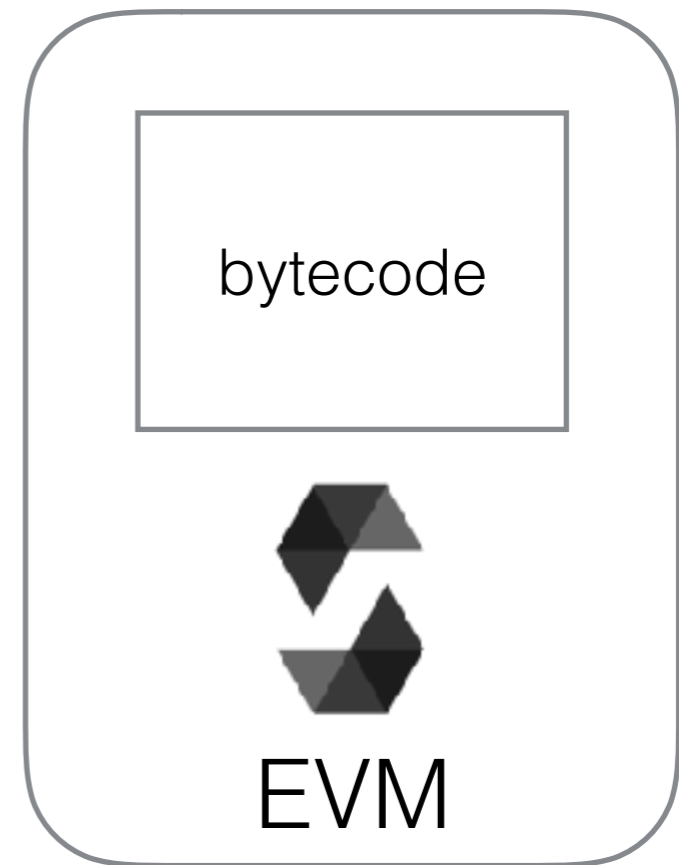
whisper

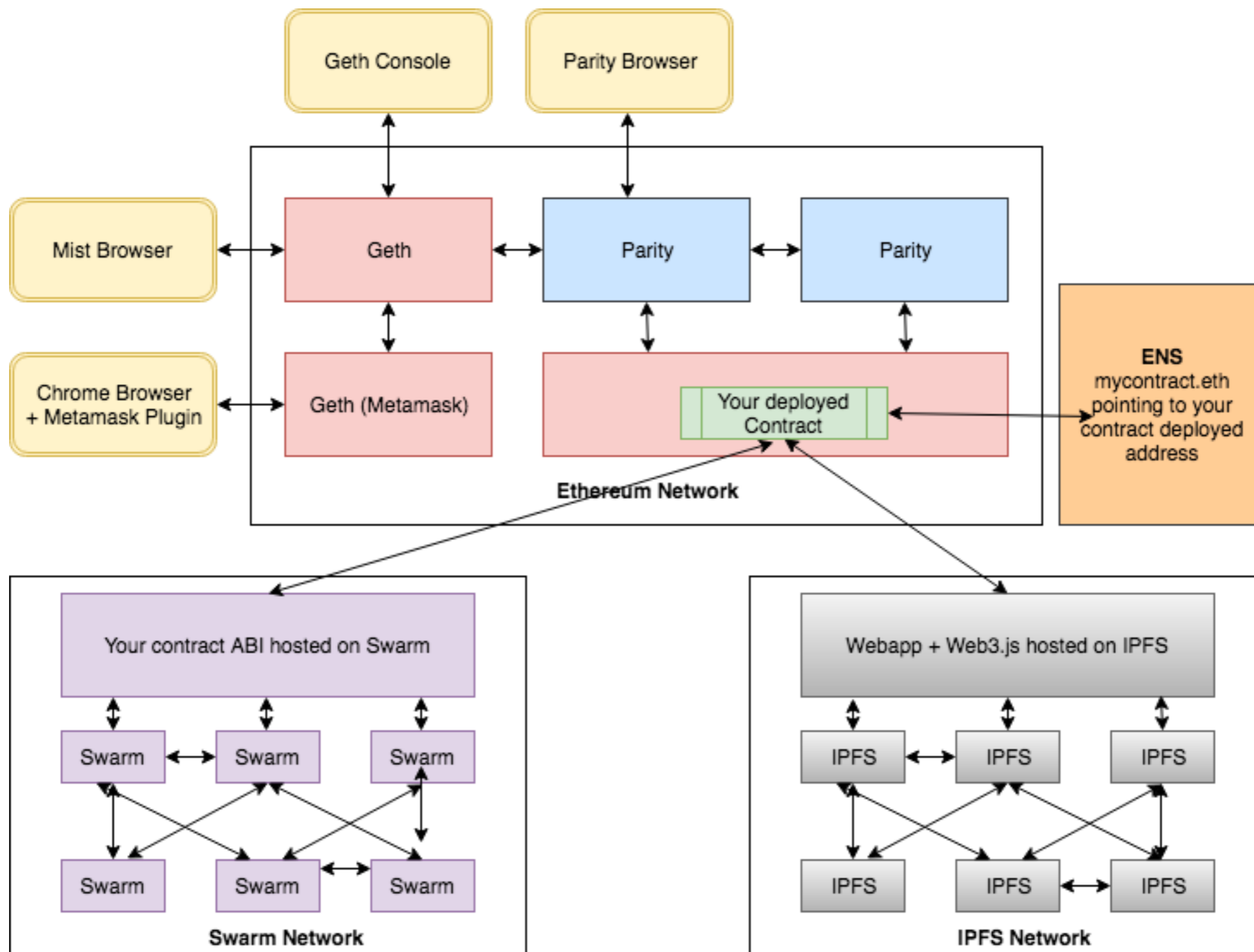


Fabric

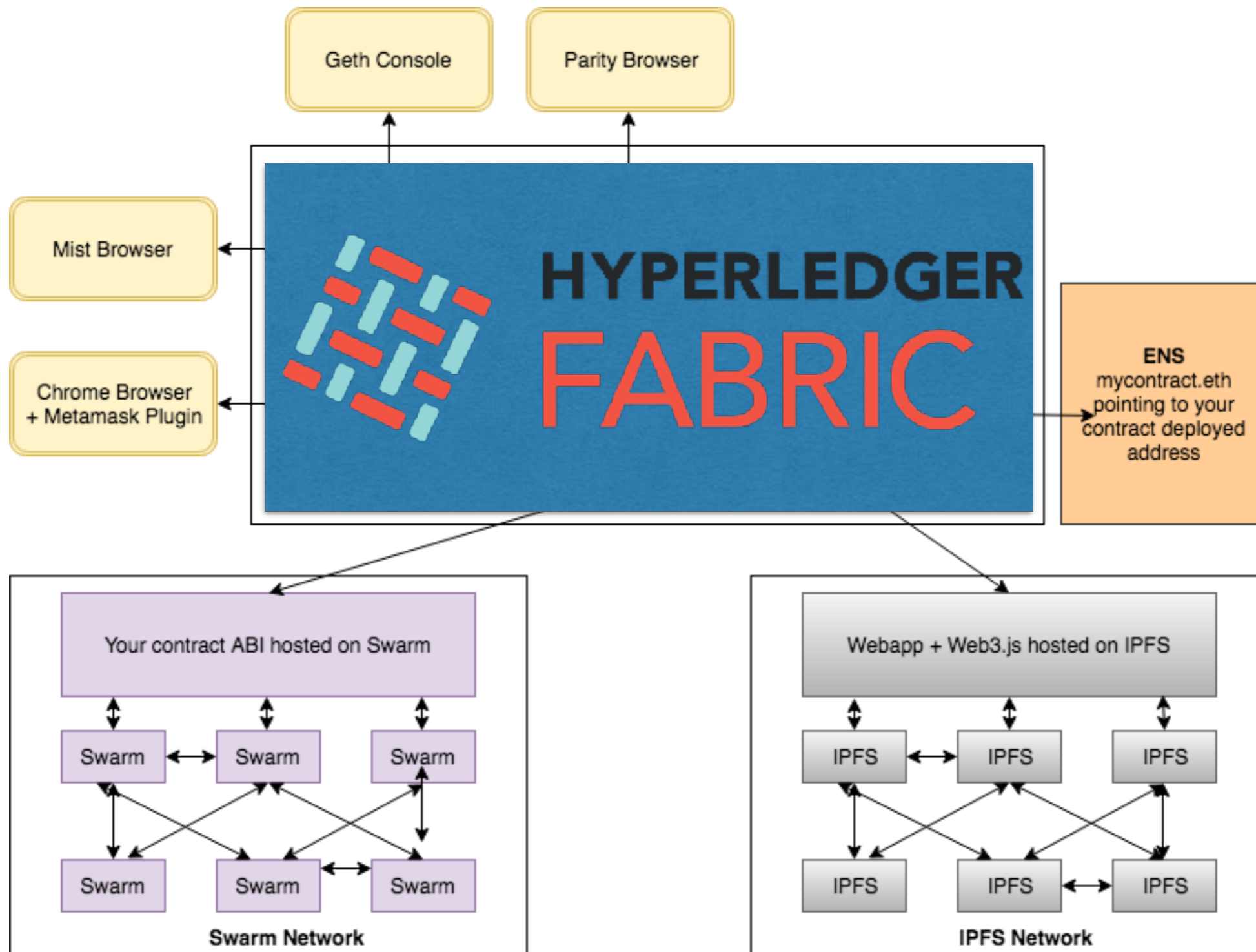


Ethereum





Ethereum Ecosystem

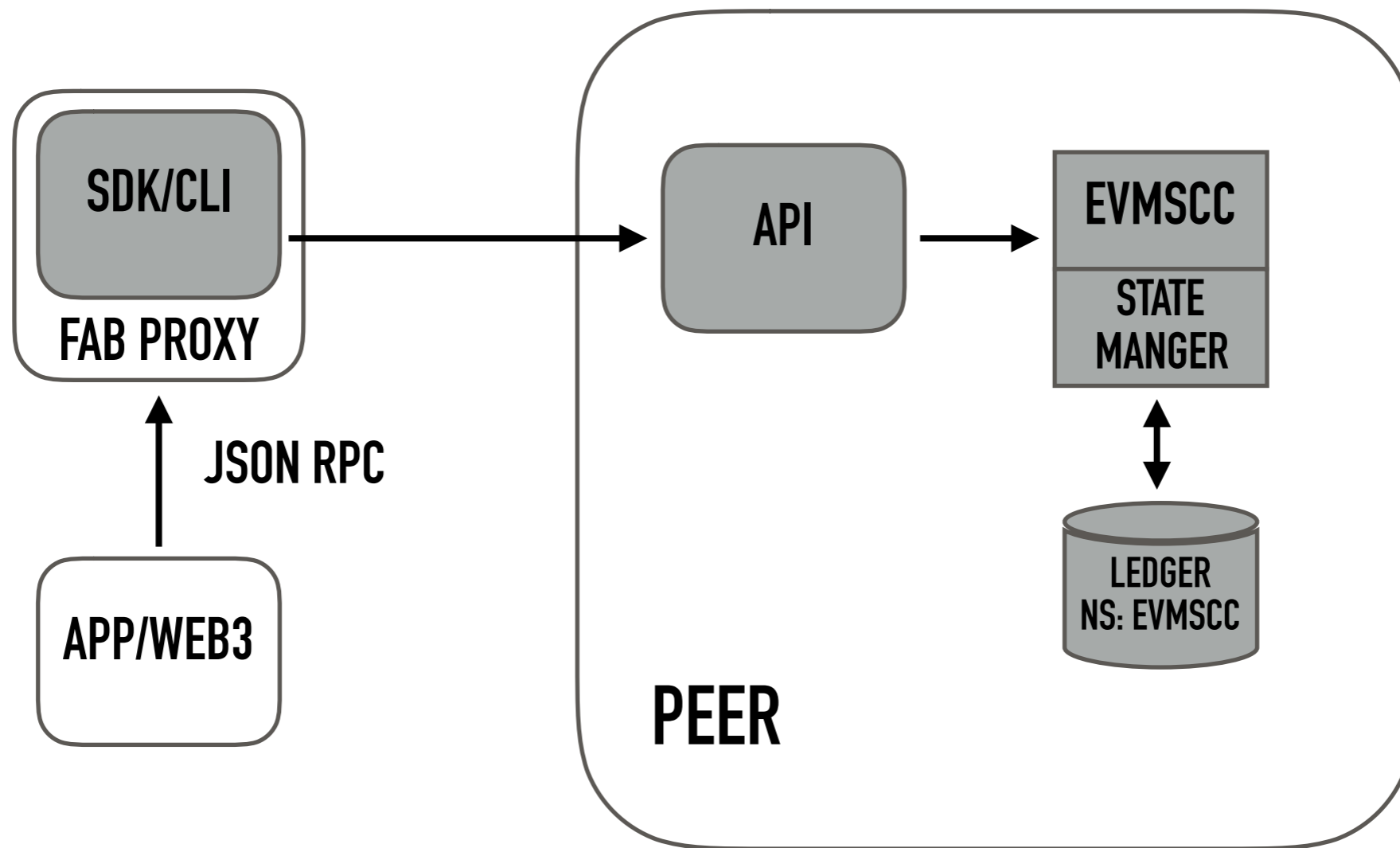


What if...

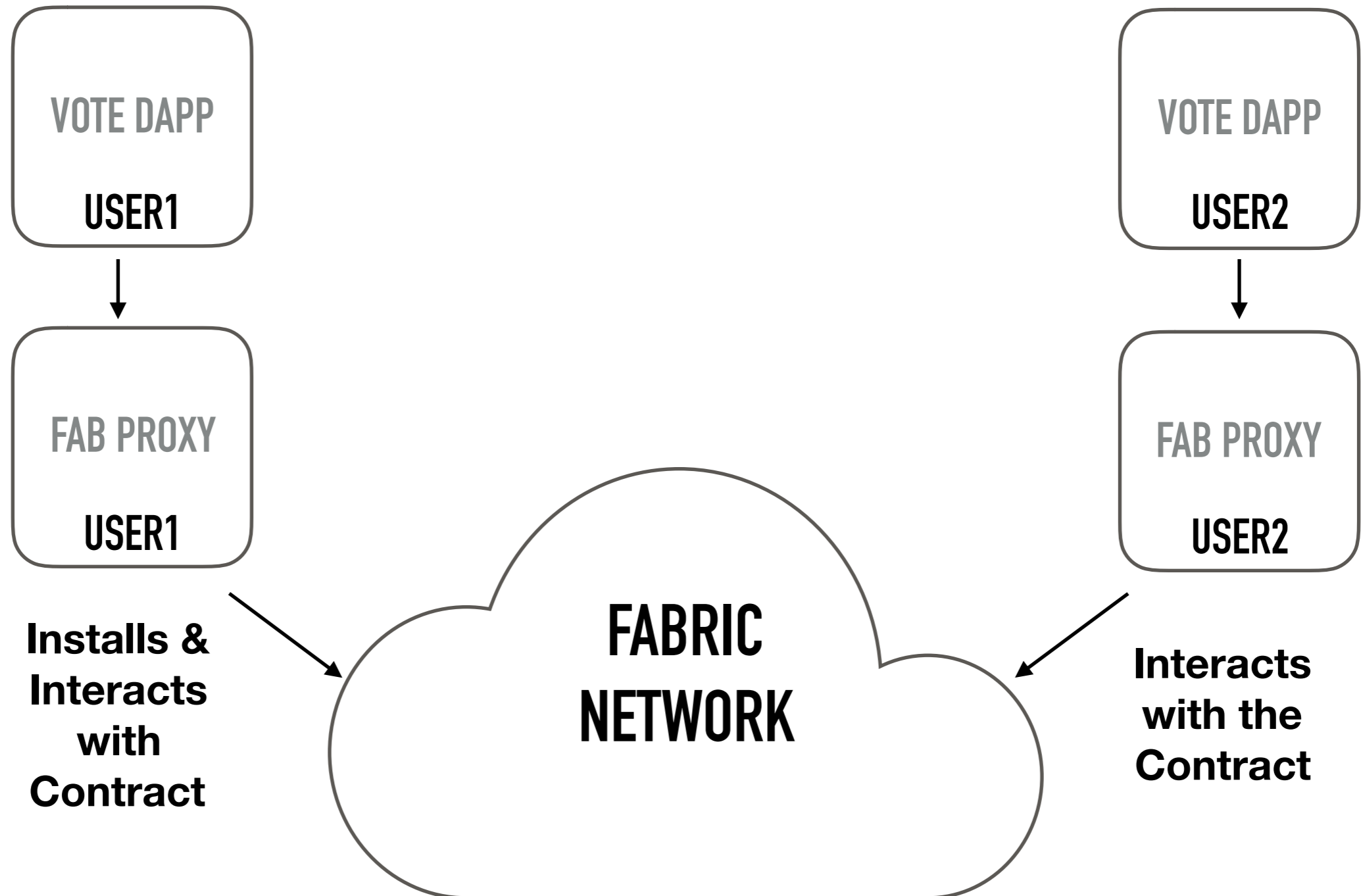
How it's done

previous work

- EVM is a spec
- go-ethereum is under LGPL-3.0, which we cannot use directly
- luckily, Hyperledger Burrow has its own implementation of EVM spec, under Apache 2.0
- Sawtooth has already leveraged that lib to support evm bytecode execution, i.e. seth
- shoutout to Burrow team for their generous support!



Demo



Future Work

- Fabric EVM experimental support in Fabric 1.2
- Fab Proxy in Fabric 1.3
- Introduction of events in Smart Contracts
- Looking into Adding Native Accounts

References

- Fabric Chaincode EVM Repo: <https://github.com/hyperledger/fabric-chaincode-evm>
- Deploy Fabric + EVM to IBM Kubernetes Service: <https://github.com/swetharepakula/fabric-evm-ibm-container-service>
- POC Proxy: <https://github.com/swetharepakula/fabric-chaincode-evm>
- Fabric EVM Demo: <http://fabric-evm-demo.mybluemix.net/>
- IBM Code: <https://ibm.biz/BdZWzT>

Thanks!

Any Questions?