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Blockchain as a Service with Azure Test Labs

Microsoft @ MIT

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Overview

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- MSP Updates
- Intro to Blockchain
- What is Ethereum?
- Developing for the blockchain
- Azure Dev Labs Tutorial

Microsoft Student Partners Updates

Who are the MSPs?

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- We are student ambassadors on campus who host fun workshops and promote a community of student engagement in technology!
- We host monthly workshops, give demos on new technology and share Microsoft opportunities
- Email us: mit-msp@mit.edu

Install free Azure Passes

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- Instructions to redeem the passes at: https://www.microsoftazurepass.com/Home/HowTo
- Azure passes have $100 value over 3 months
- Subscriptions are activated within minutes of the promo code being redeemed

Microsoft Imagine

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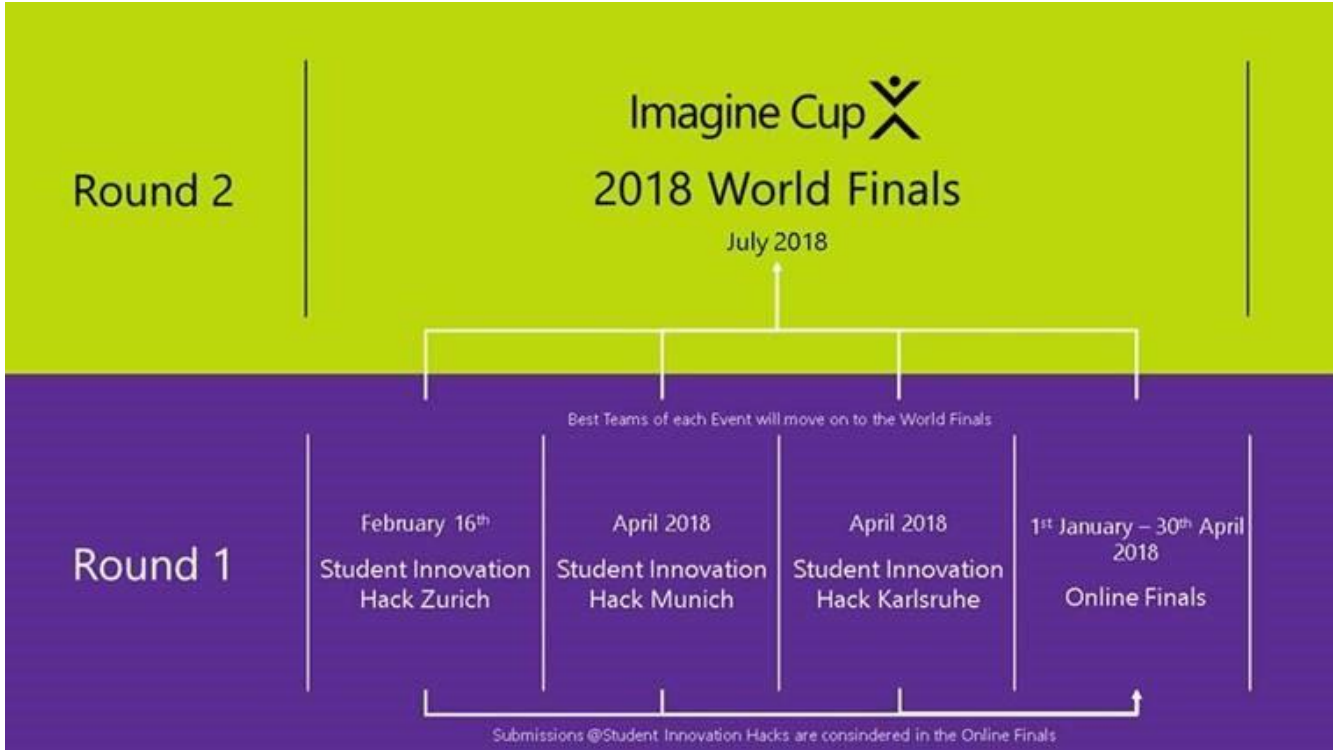

Intro to Blockchain

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What is blockchain?

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Blockchain is a data structure

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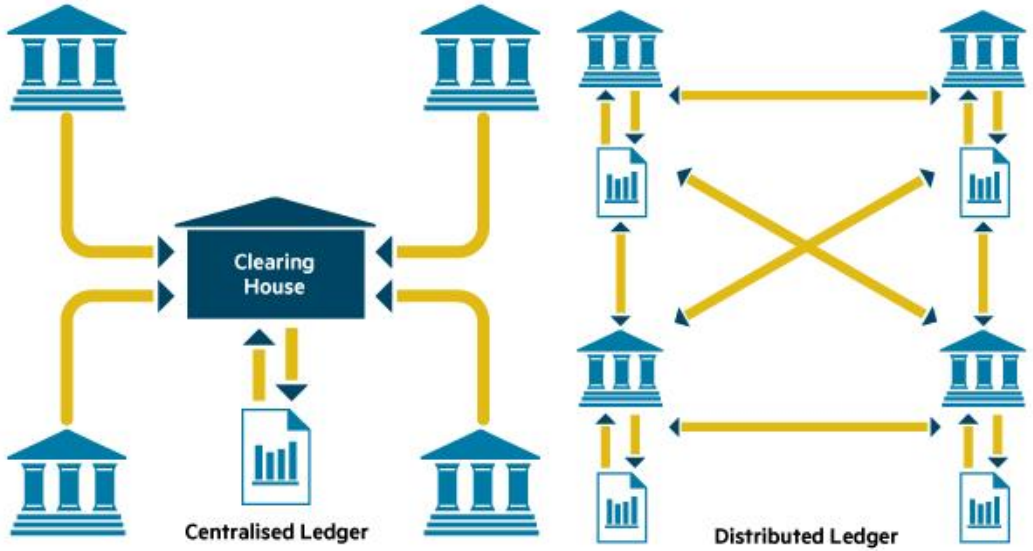
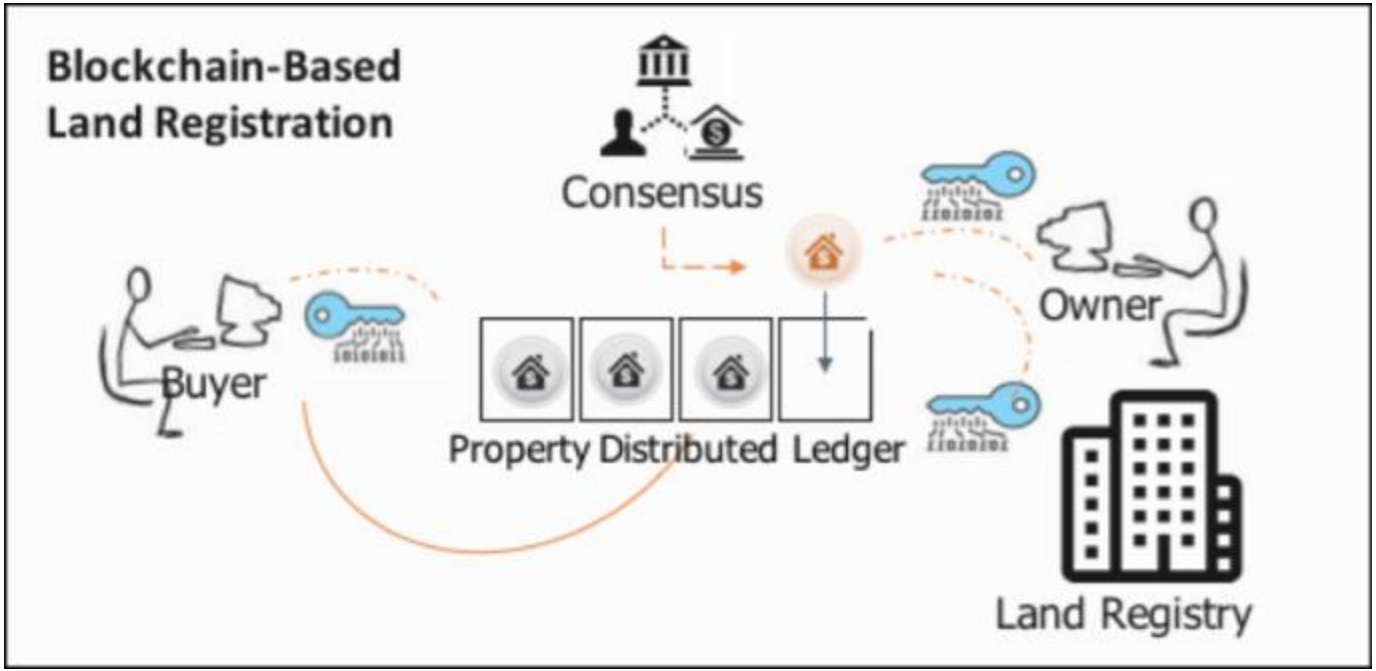
- Cryptographically secure
- Distributed ledger
- Shared value



Cryptographic Keys



Azure Services for Blockchain

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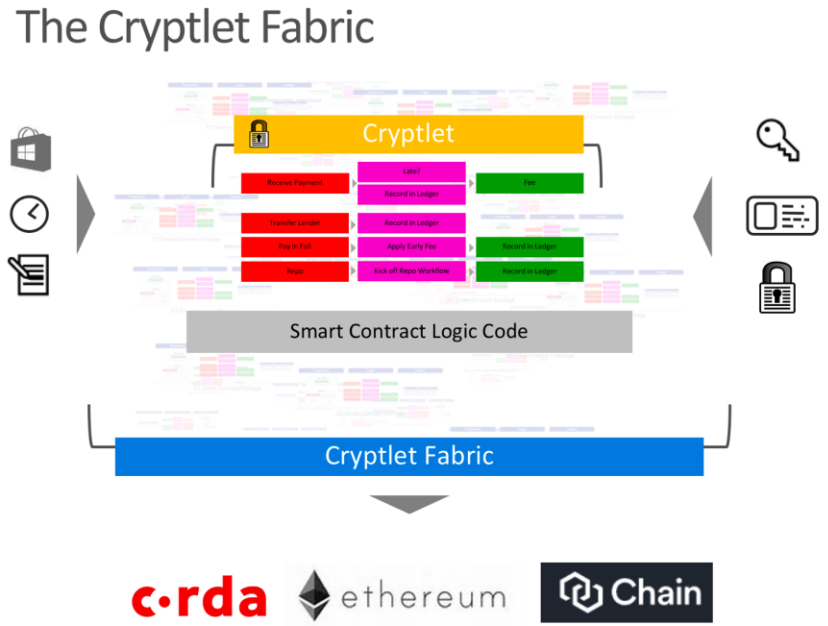
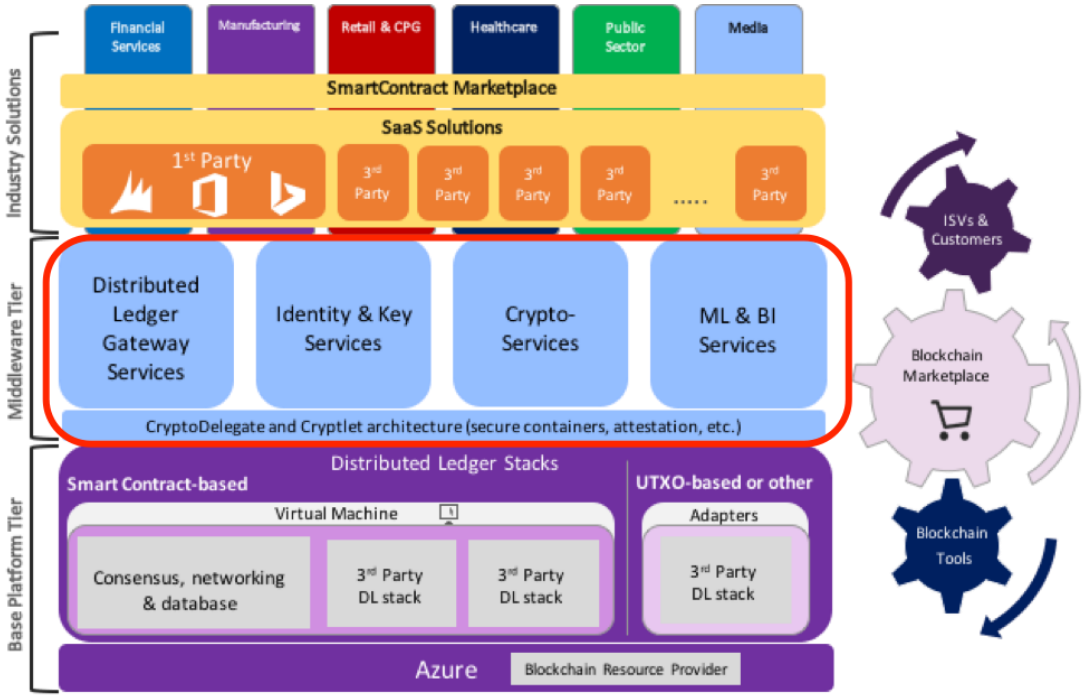
Sample Services

- Azure Dev Labs – Blockchain Labs
- Coco Framework
- Truffle



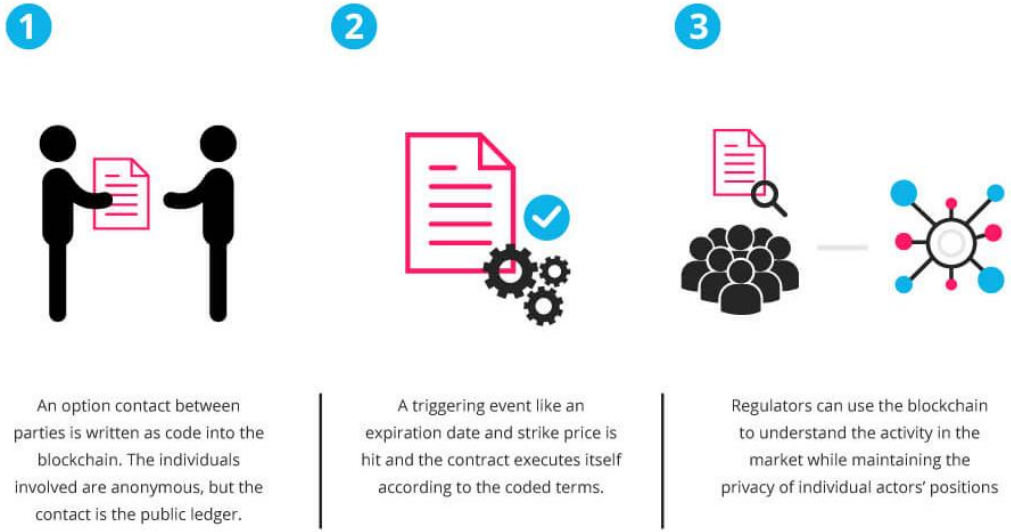
Major Projects



What is Ethereum?

Differences from Bitcoin

- Miners work to earn Ether
- Building smart contracts



Ethereum Virtual Machine

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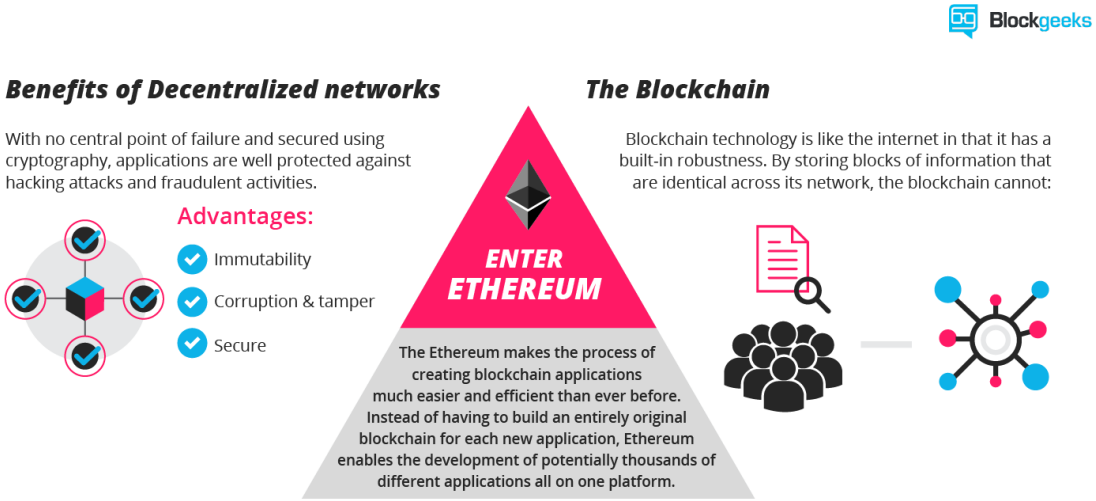
- Turing complete software
- Allows you to run any program



Developing for the Blockchain

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Benefits of Decentralized Apps

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- Immutability
- Corruption & tamper proof
- Secure
- Zero downtime

Applications

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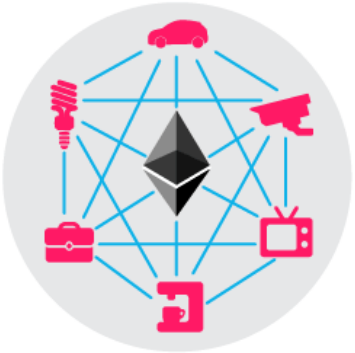
Blockgeeks

What apps are currently being developed on Ethereum?

Decentralizing Existing Services

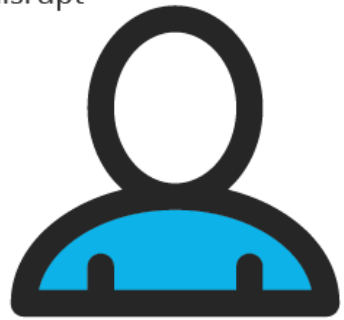


The Ethereum platform is being used to create applications across a broad range of services and industries

A future of unimagined possibilities

Decentralized applications have the potential to profoundly disrupt hundreds of industries

- finance
- real estate,
- insurance



Azure Dev Labs Tutorial

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Blockchain as a Service

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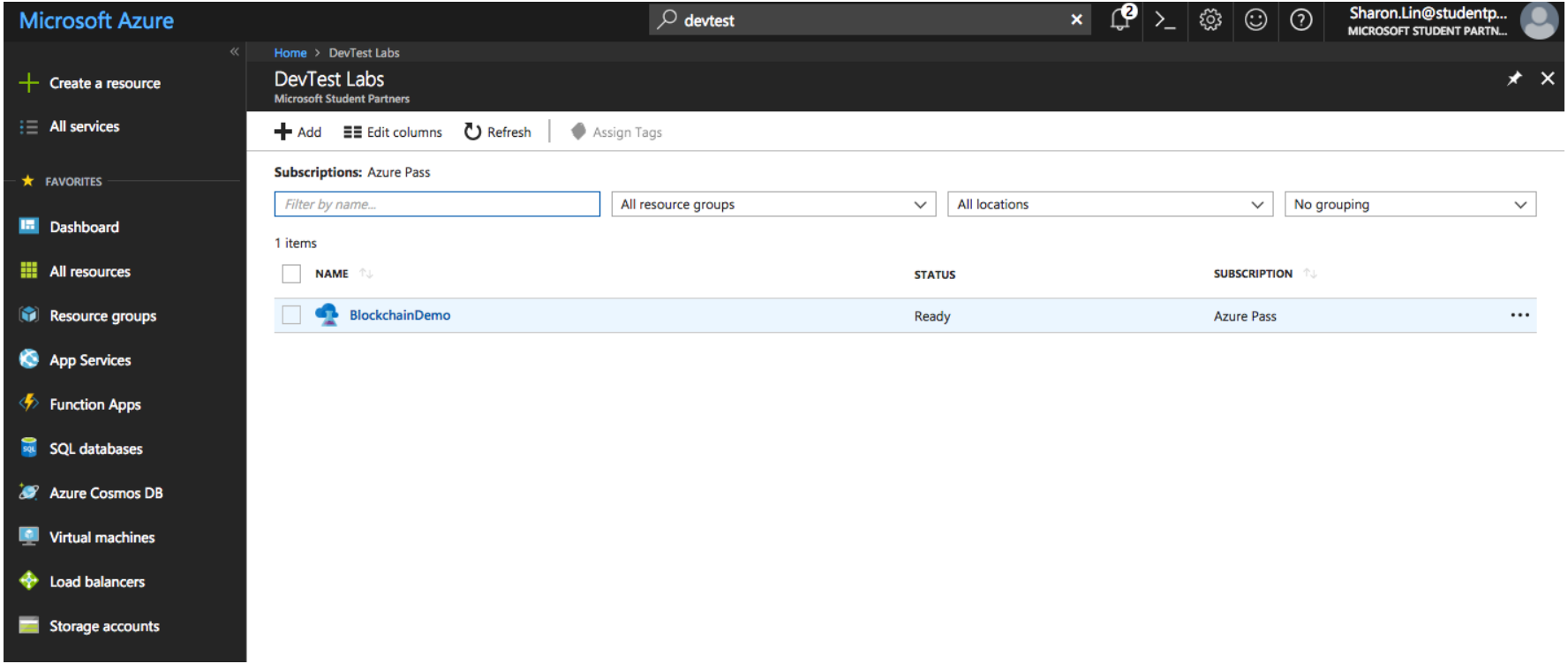
- Based on tutorial here
- Activate Azure passes
- Log in to Azure portal
- Search for 'DevTest Labs'

Blockchain as a Service



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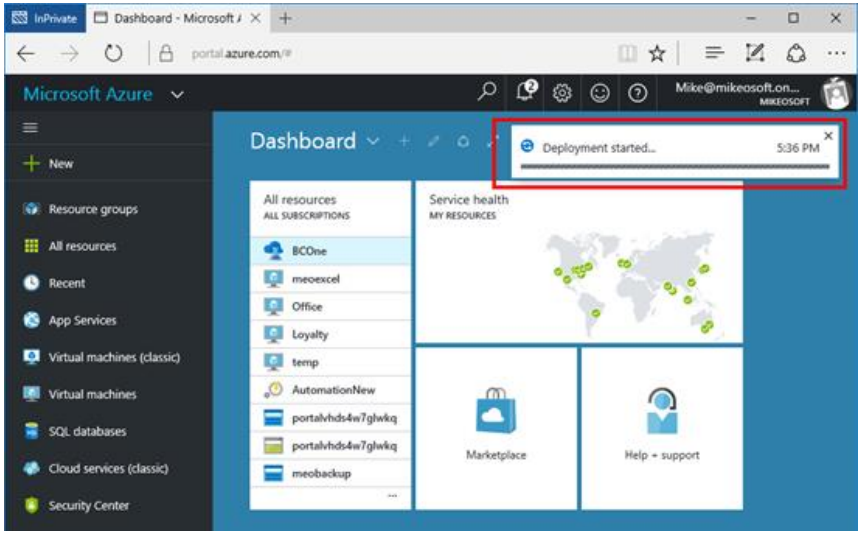
Create DevTest Labs Instance

- Enter name for the lab
- Set location to 'East US'
- Pin to dashboard
- Deploy the instance



Connect to Virtual Machine

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- Find the deployed app
- Click '+Virtual Machine'
- Configure the Virtual Machine
  - Steps on the next slide

Connect to Virtual Machine

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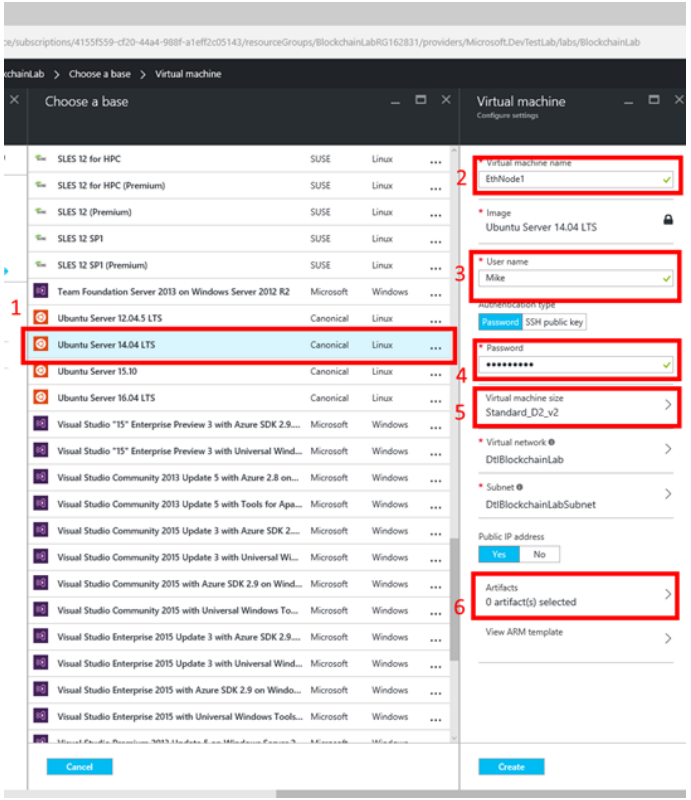
- Select “Ubuntu Server 14.04 LTS” as the base image
- Give the machine a name eg EthNode1
- Provide a username and password
- Set a machine size eg Standard_D2_v2
- VirtualNetwork and Subnet should be preconfigured f. Leave the IP address as public
- Click on “Artifacts” to add the required Ethereum components

Connect to Virtual Machine



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Connect to Virtual Machine

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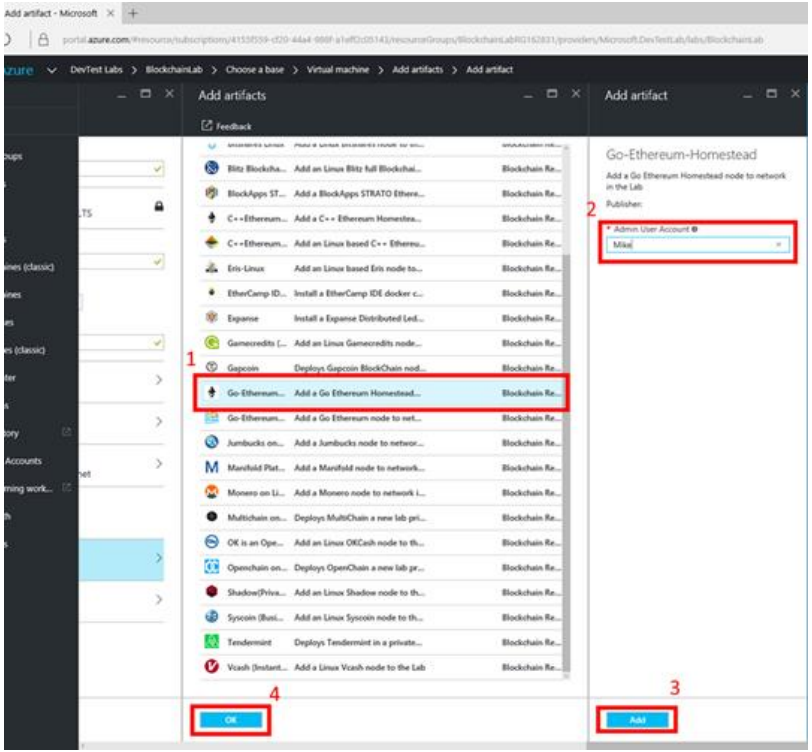
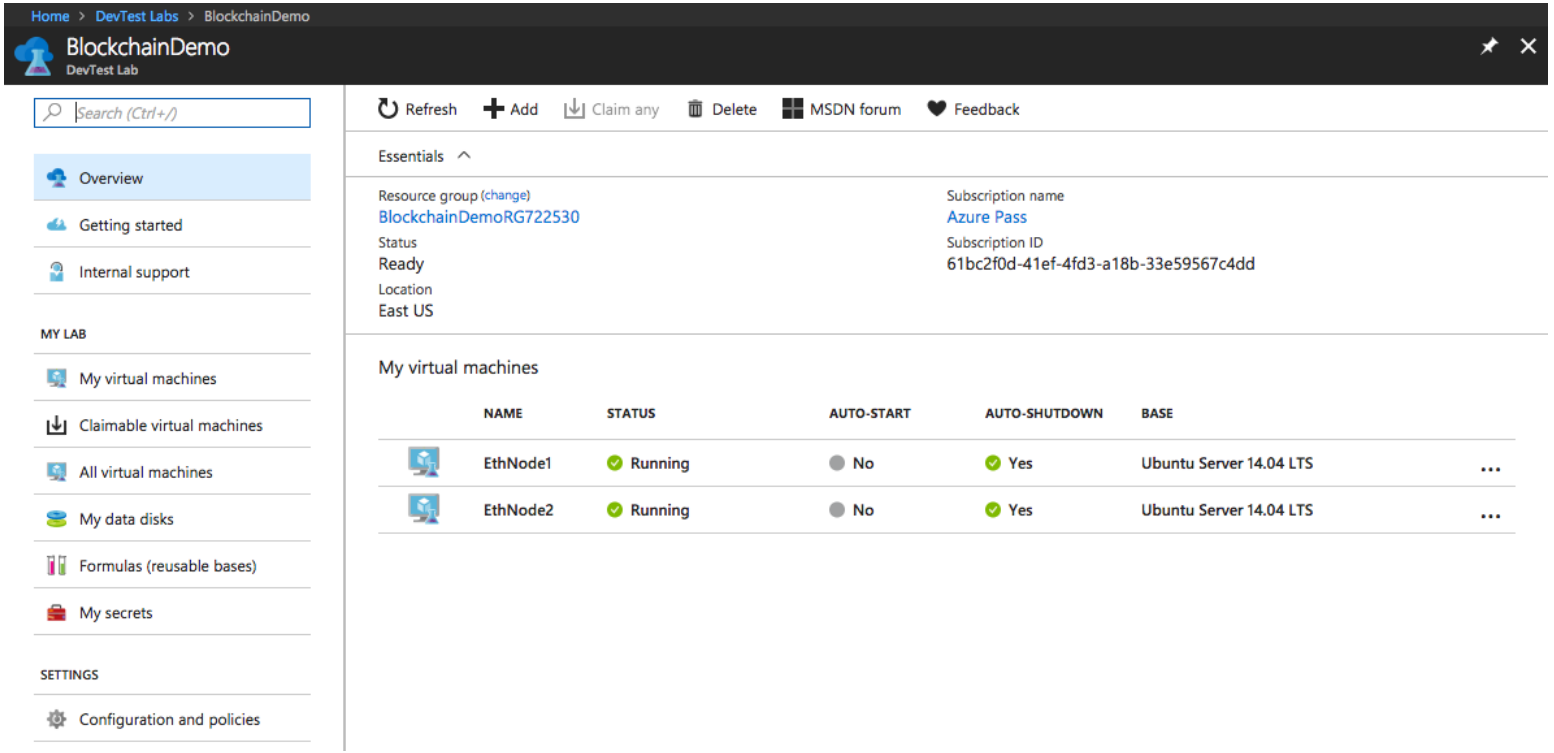
- Select “Go-Ethereum-Homestead”
- In the blade that appears, enter the username you created earlier into the Admin User Account field
- Click Add on the artefact configuration (username) blade
- Click OK on the “Add artifacts” blade
- Click Create on the “Virtual Machine” blade which will now have 1 artifact selected

Connect to Virtual Machine



Connect to Virtual Machine



SSH into the VM

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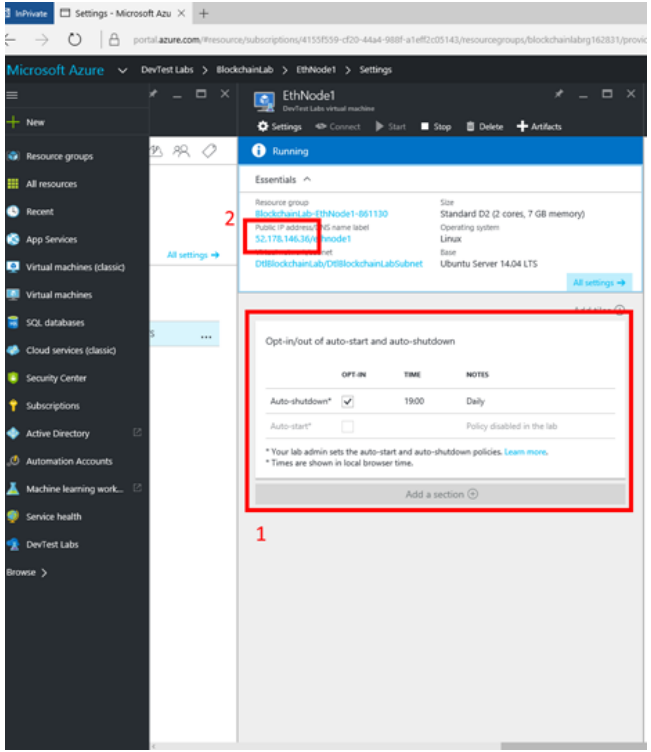
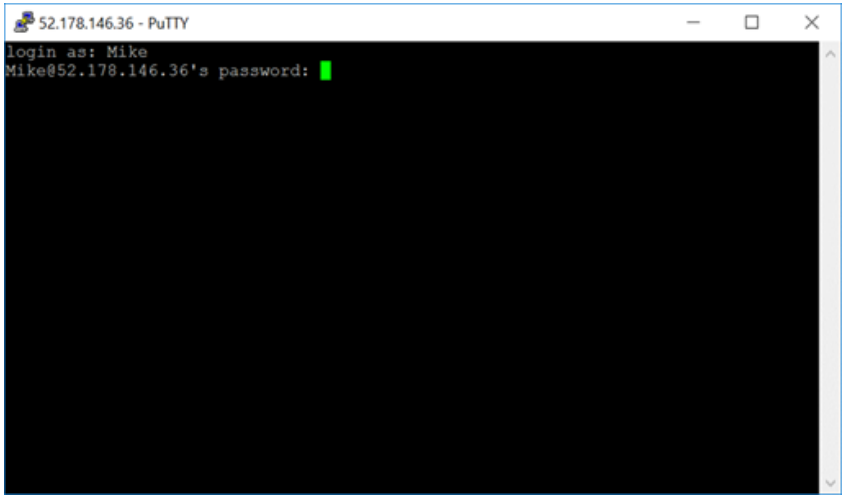
- Use SSH client or Terminal
- In the DevTest Lab blade, click through to the VM you want to connect to
- Note the auto-start and auto-shutdown tile. You can opt-in to have your VMs automatically shutdown out of hours ensuring they don't incur unnecessary costs
- Capture the public IP address of the VM so we can connect to it over SSH.

SSH into the VM



SSH into the VM

- Open a connection
- Log in with the credentials you used
  - i.e. sharonl@ethnode2438421.eastus.cloudapp.azure.com



Git clone demo app

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- Git clone the demo app
- https://github.com/sharon-lin/ethereum-todo-list

Git clone demo app

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- cd into the directory
- If you don't have Node v8.9.0 or NPM v4.0.5
  - Download https://nodejs.org/en/
- Install Truffle
  - npm install –g truffle
- Install Ethereum Testrpc
  - npm install –g ethereumjs-testrpc

Git clone demo app

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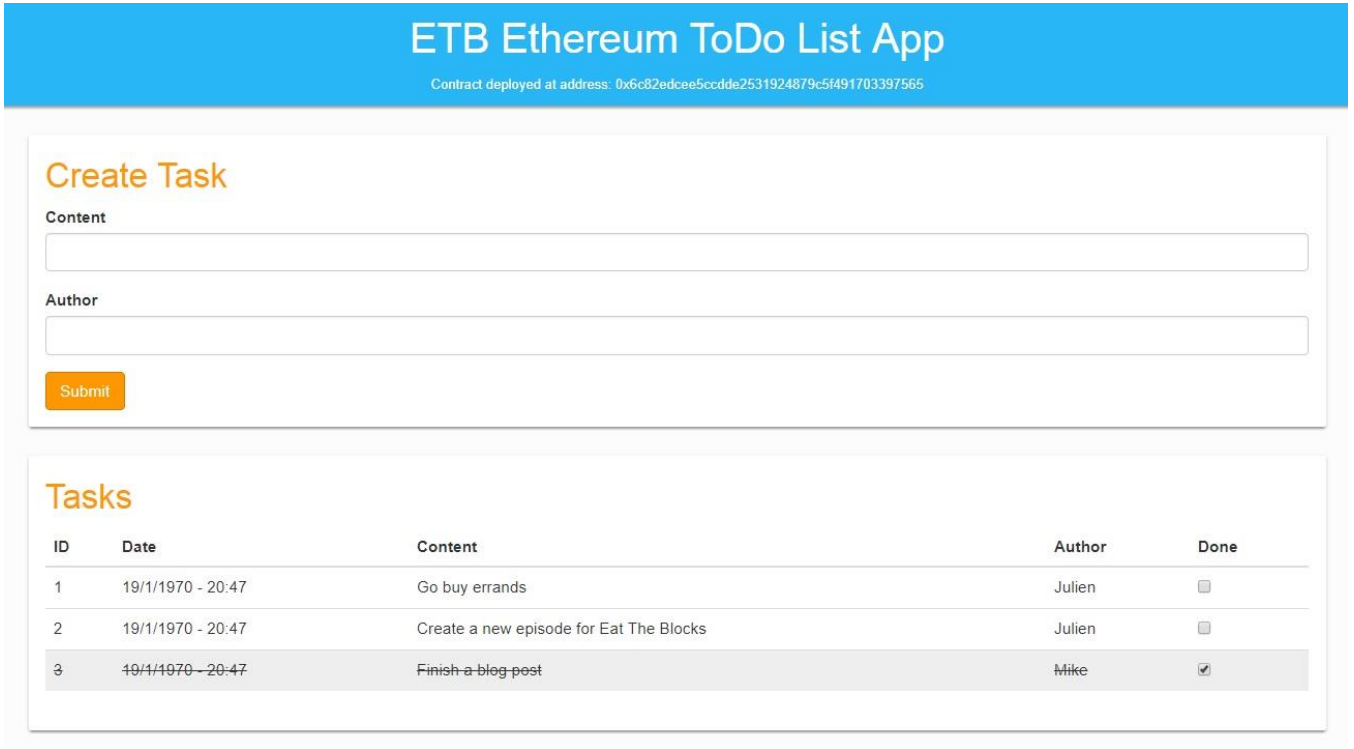
- Open terminal and start 'testrpc'
- Open another terminal and 'npm install'
- Start the app with 'npm start'
- Navigate to 'localhost:3000' to see your app!

Git clone demo app



Wrap Up and Survey

Survey and Drone Giveaway

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- https://aka.ms/2017-18usmspworkshopsurvey01

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