



# Mojaloop a 1<sup>st</sup> Class Citizen on Microsoft Azure

ONLINE PI-17 OSS Community Meeting – Technical Session  
Microsoft and Mojaloop Status a Non-Official Workstream Report

# About Me



- First off, volunteered to discuss the status of this workstream
- Chief Strategic Development Officer at Sybrin
  - Mojaloop
  - OSS Transactional Monitoring Solution
  - RegTech
  - Public Good Initiatives
- Mojaloop Technical Governance Board Member
- Mojaloop Community Council Member
- Product Council, Marketing and Go To Market Participation





# Agenda

- Mojaloop on Azure, why is it important
- Project Organization
- Scope
- Work Completed / Work In Progress

# Why is this important?



Here's just some of what you can do with Azure



## Test and deploy enterprise apps

Experience the power of cloud computing with Azure Virtual Machines, Managed Disks, and SQL databases while providing high availability and scalable performance with load-balanced Virtual Machine Scale Sets.



## Create customised mobile experiences

Build based on your customers' interests and behaviours using Azure App Service and Azure Cosmos DB, Xamarin and Traffic Manager.



## Gain insights from your data

Analyse petabyte-scale data and make better decisions faster using cloud computing services like Azure Machine Learning, Azure Databricks and HDInsight.

1. We will reach a lot more people.
2. A lot more options.
3. We get to do a lot of validation and artifacts, paid for by Microsoft.

# Ideas can only come from access before they lead to Innovation



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# Mojaloop, a First-Class Citizen on Azure



- Microsoft Announced at the last convening a project to make Mojaloop a First-Class Citizen on:
  - Microsoft Azure
  - Microsoft Marketplace
  - Microsoft Azure Stack
    - A hybrid cloud solution that allows cloud management but uses local resources and therefore meets a countries data residency rules
  - The goal is to optimize performance &
  - Ease of installation and management
    - ARM Templates for multiple purposes to be created
    - Leverage Azure Management Portal
      - Deployment
      - Active management
      - Alerting and reporting

# Project Initiation



- Started in December but due to the holidays was running in earnest in January
- Virtual Team has been onboarded in Azure DevOps & it has been set up
  - All management will be done in Azure DevOps – first
  - Repos
  - Wiki
  - Pipelines
  - Artifacts will be moved to
    - The Azure ARM Template
    - The Azure Market Place
    - Mojaloop official repos and documentation where appropriate
- Internal project cadence has been established
  - External with community teams needs set up.

# Scope



- Pure OSS Baseline Setup in Azure Kubernetes Service (AKS)
- Stateful components
  - To reduce admin overhead for a switch operator all stateful components will make use of Azure managed platform services. Kafka will be removed from the AKS cluster and services will be updated to make use of either HDInsight or Event Hubs with the later being a far more cost-effective method.
  - Percona Mysql being replaced by Azure databases for Mysql
- Scripting Phase 1
  - In the first phase of scripting the components in use so far, will need to commissioned and decommissioned rapidly to not exhaust the project's azure spend budget

# Scope (cont'd)



- API Management
  - Implement the Azure Api Manager with Mtls to ingress controller of AKS. This will be used as an alternative to Ws02.
- Scripting Phase 2
  - Adding in scripting to automate work carried out with API management components
- DFSP Authentication
  - Creation of a DFSP ID and CERT validation policy to authorize participants
- Testing Toolkit
  - Explore if we need any changes or alternatives due to platform and changes

# Scope (cont'd)



- Scripting Phase 3
  - The finalization of any IAC work that was not covered in the prior phases.
- Documentation
  - This is for any documentation required by the Azure marketplace or stack teams.
  - The creation of any getting started style Azure guides will also be covered here.
- Stretch Goals (nice to haves)
  - Application Insights

# Terraform



- There has been talk of adding this into the scope, but this is a Microsoft Azure First project using Microsoft tooling.
- The goal is to make things simple for someone who is familiar with the Azure environment and Microsoft customers in general.
- The other goal is to utilize Azure cloud native services, so that costing can be flexible.
- That said, a lot of this work can be utilized in Terraform or any other IaC tool to optimize a Mojaloop on Azure deployment.

# Working With MS Marketplace



- The team will be working closely with the Microsoft Marketplace team to ensure that anyone who wants to can try out, develop on test or production deploy Mojaloop in the standard Azure native way.
- One click deployments, follow the prompt advanced deployments, and scripted deployments.
- Anyone familiar with Azure can deploy, beginners can too, and anyone gets all the normal Microsoft support infrastructure and guidance.

# Work Completed

- ADO Setup
- Virtual Team Onboarded
- Initial Plan Created
- Scope Decided
- Current Helm Charts Update OSS Baseline
  - Single Cluster from script successful
  - HELM native in Azure CLI
  - Only handful of issues

```
root@DBAR-NB-04: /mnt/c/git/MicrosoftMojaloop
-----FINAL REPORT-----
Test Suite:GP Tests
Environment:Development

          SUMMARY

Total assertions | 2318
Passed assertions | 2318
Failed assertions | 0
Total requests | 551
Total test cases | 120
Passed percentage | 100.00%
Started time | Mon, 24 Jan 2022 11:08:45 GMT
Completed time | Mon, 24 Jan 2022 11:12:00 GMT
Runtime duration | 194205 ms

TTK-Assertion-Report-multi-2022-01-24T11:12:00.143Z.html was generated
Terminate with exit code 0
Done
```

# Work In Progress



- Nginx Retrofit Ingress Issues
- Switching To Azure Native Stateful Components
  - Modifying Helm charts to point to Azure databases for Mysql (DBaaS) (In Flight)
  - Kafka will be removed from the AKS cluster and services will be updated to make use of either HDInsight or Event Hubs (Next)
- End to End Azure Infrastructure Design (In Flight)
  - Security Design of Base Components
  - Networking Design
  - K8s Design

# Working with the community



- Now that the team is organized and work started, we will work with the community and get a regular cadence going to updates
  - The team needs to be in sync with the community and
  - The community needs to be in sync with this effort.
- The team will work closely with the dev ops workstreams as that is where most of the changes will be confined to.
- If any “shims” or adjustments to code need to be made it will be discussed with the TGB and DA.
- The intention is not to do anything that will create a fork.



# Questions?