Mini-loop update (v4.x)

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Agenda

- What is it / what is it for => recap
- ~~Demonstration~~ Try it !
- Status & Next Steps
- Summary

What is mini-loop and what is is for ?

What is mini-loop and what is it for ?

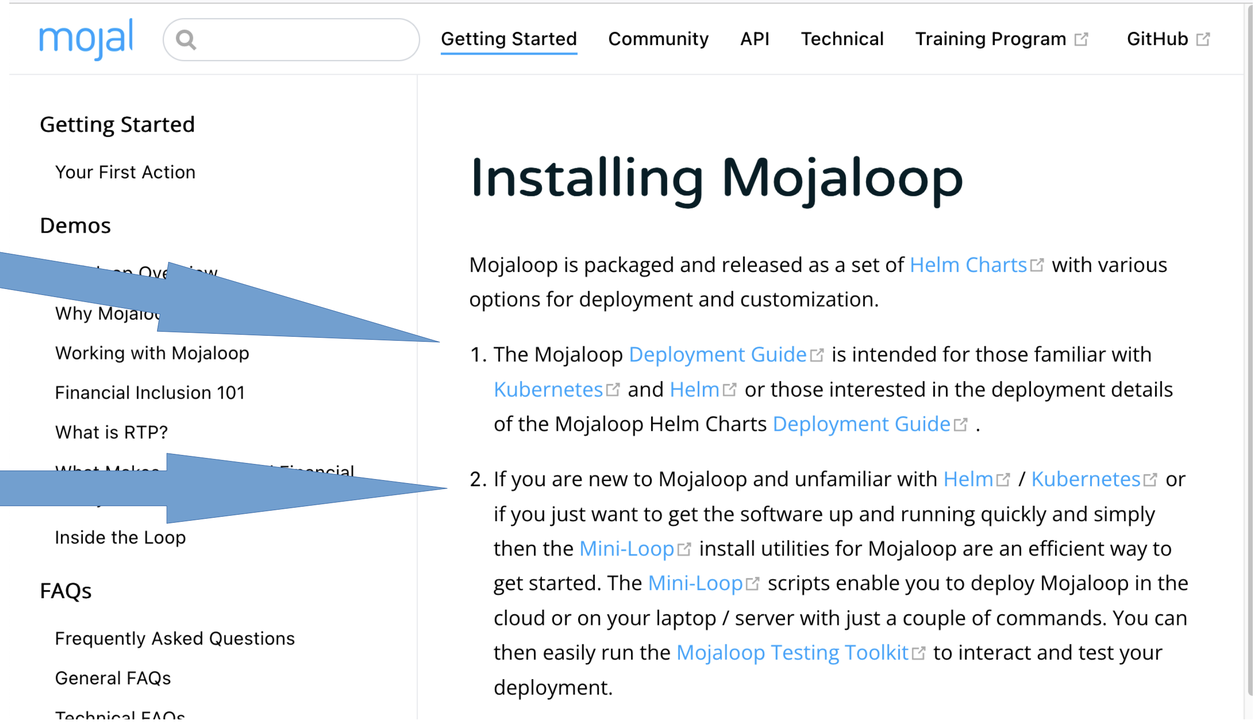
Automation of the

Mojaloop “Deployment Guide”

https://docs.mojaloop.io/getting-started/installation/installing-mojaloop.html

Option #1 type install and configuration commands

Option #2 mini-loop scripted install

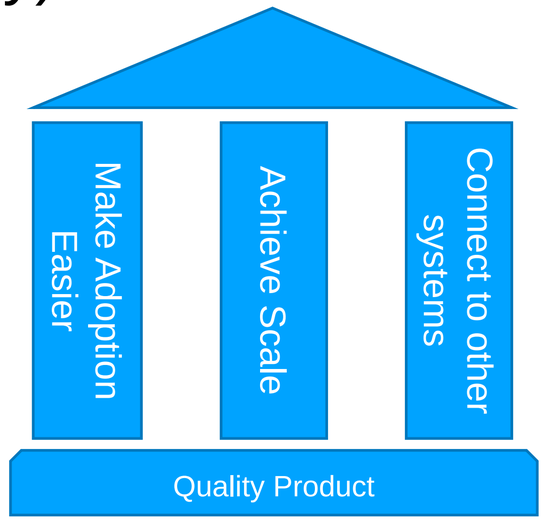


What is mini-loop and what is it for ?

- OOTB (out of the box) Mojaloop installation
- Complete Mojaloop hub (almost) including 3PPI
- Repeatable and scriptable
- Opinionated / Simplified config
- Ubuntu OS , 6GB RAM and X86/AMD processor (pentium or better)
- Tooling to help manage significant volume of configuration information

What is mini-loop and what is it for ?

- Make it easier to access Mojaloop !
- Demonstrations
- Teaching / Learning and lab environments (spin up / down rapidly)
- Testing
  - Q/A
  - Run entire TTK Golden Path tests
  - Performance experiments (vNext)
- Increase familiarity with Mojaloop => increase our community
- **Quick** (15-20 mins for entire hub and services)
- Cheap !



What is mini-loop and what is it for ?

Mojaloop Kubernetes Release Testing

- Kubernetes platform releases every 3 months

  => we need to help everyone move with kubernetes !

- Each new Mojaloop release will be tested (by us)

  On most current kubernetes release (DA #93 process decision)

  ⇒ Mojaloop release 14.1 tested on latest kubernetes release

  ⇒ Helping to keep up with Kubernetes and providers

mini-loop provides / quick convenient / isolated way for users to try latest Mojaloop to assist in determining their upgrade path.

What is mini-loop and what is it for ?

Also some build tooling

e.g. mod_local_minloop.py

Process all the value.yaml files in all directories

Read and parse .yaml

Make config changes

```
print(" ==> mod_local_miniloop : Modify helm values to implement single mysql database")
for vf in p.glob('**/*values.yaml') :
    with open(vf) as f:
        if (args.verbose):
            print(f"===> Processing file < {vf.parent}/{vf.name} > ")
        skip = False
        for fn in yaml_files_check_list :
            if  vf == Path(fn) :
                if (args.verbose):
                    print(f"This yaml file needs checking skipping load/processing for now =>  {Path(fn)} ")
                skip=True
        if not skip :
            data = yaml.load(f)

        for x, value in lookup("mysql", data):
            if (value.get("name") == "wait-for-mysql" ):
                value['repository'] = "mysql"
                value['tag'] = '8.0'
            if value.get("mysqlDatabase"):
                value['enabled'] = False

        # update the values files to use a mysql instance that has already been deployed
        # and that uses a newly generated database password
        for x, value in lookup("config", data):
            if  isinstance(value, dict):
                if (value.get('db_type')):
                    value['db_host'] = 'mldb'
                    value['db_password'] = db_pass
```

=> Used this approach to move to latest kubernetes networking API in Mojaloop version 14.1 RC

What is mini-loop and what is it for

Benefit of tooling (mod_local_miniloop.py) is we can make consistent changes

cd helm ; cat **/*yaml | wc -l

We have more that *26,000 lines of values.yaml configuration in 55 distinct values.yaml files
=> need tooling to manage

*includes comments

What is NOT for

- mini-loop does NOT enable “production ready” deployments of Mojaloop

~~Demonstration~~
Try it

How many folks in the room have actually RUN Mojaloop

How many folks think they “WOULD BENEFIT” from running Mojaloop

You can try it out

- **Laptop Requirements**
- Intel/AMD (pentium or better)
- Min 6 - 8 GB free ram
- Able to run VirtualBox 6.1

- **Cloud Instance**
- Intel/AMD instance
- Min 8 Gb free ram(16Gb is better)
- Ubuntu 16.x – 20.04
- Internet access

Try it out !

- https://github.com/tdaly61/mini-loop

- **Laptop**
- Install VirtualBox 6.1 (from USB)
- Import Mojaloop appliance (from USB) and “start”
- ssh -p 2222 vagrant@127.0.0.1 (passwd: vagrant)
- kubectl get pods
- Add the list of ML hosts to VM **HOST** local hosts file
- Run the Mojaloop TTK Mobile Emulator by browsing to http://testing-toolkit.local
- Transfer some funds

- **Cloud Instance** (use mini-loop)
- https://docs.mojaloop.io/getting-started/installation/installing-mojaloop.html
- https://github.com/tdaly61/mini-loop

<your ip> ml-api-adapter.local central-ledger.local account-lookup-service.local account-lookup-service-admin.local quoting-service.local central-settlement-service.local transaction-request-service.local central-settlement.local bulk-api-adapter.local moja-simulator.local sim-payerfsp.local sim-payeefsp.local sim-testfsp1.local sim-testfsp2.local sim-testfsp3.local sim-testfsp4.local mojaloop-simulators.local finance-portal.local operator-settlement.local settlement-management.local testing-toolkit.local testing-toolkit-specapi.local

Using mini-loop installer

Login (e.g. as mluser)

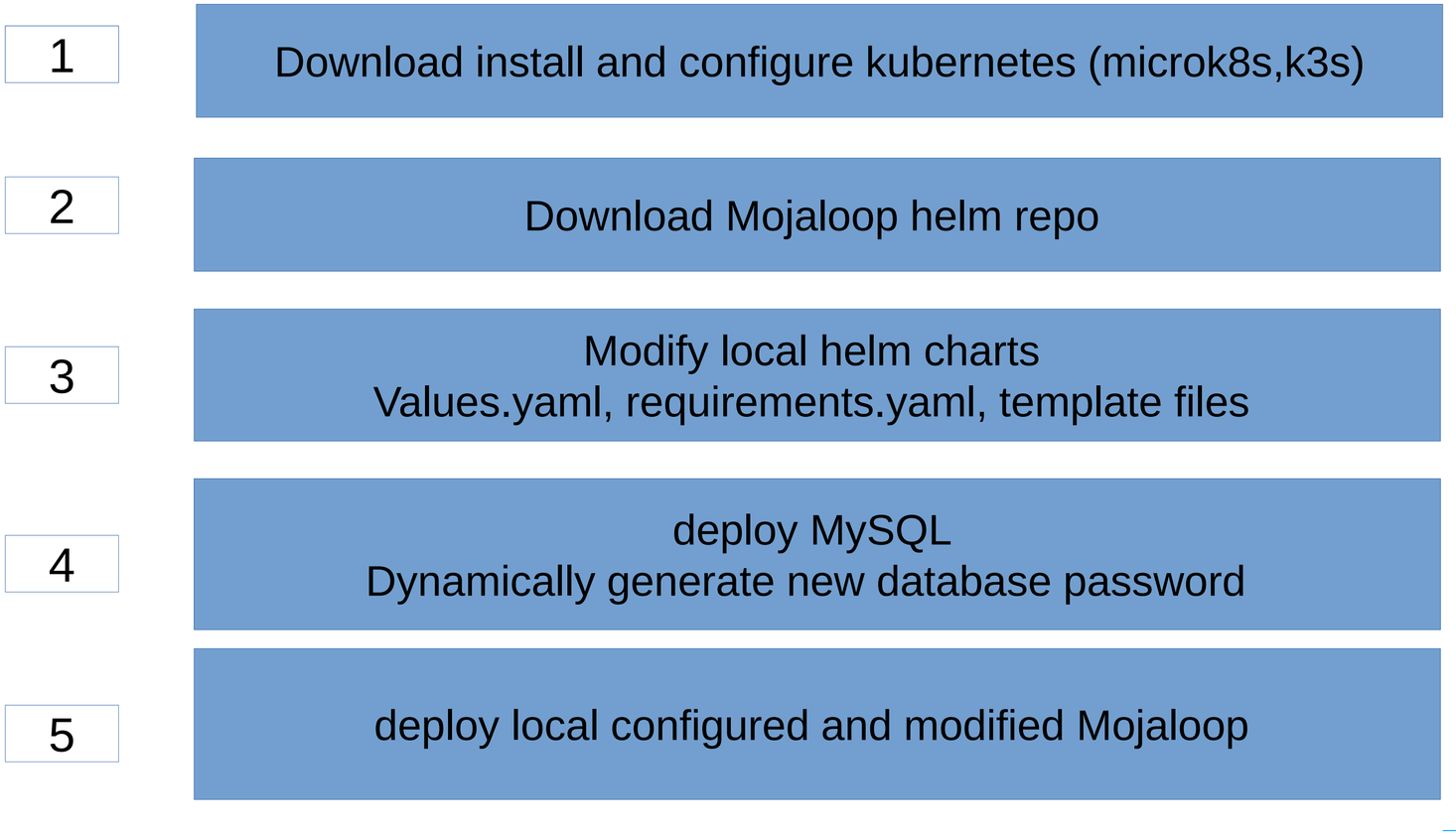
1) git clone https://github.com/tdaly61/mini-loop.git
2) sudo ./mini-loop/install/mini-loop/scripts/k8s-install-current.sh -m install -u mluser -k microk8s -v 1.24
3) source $HOME/.bashrc
4) ./mini-loop/install/mini-loop/scripts/miniloop-local-install.sh -m install_ml

[Need 8GB Ram, 40GB disk and a running Ubuntu 16,18 or 20 instance]

Status & Next Steps

Status
Mini-loop v4.x

Deploys Mojaloop v14 to kubernetes v1.24



Approx 20-30 minutes on a well configured well connected laptop or cloud instance

Next steps
Mini-loop firstly

When Mojaloop v14.1 and 15 release “many” of the modifications will be removed
=> not needed

3	Modify local helm charts Values.yaml, requirements.yaml, template files

When Mojaloop v14.1 and 15 release will automate deployment of the DB,Kafka,Mongo etc

Next steps
Mini-loop then ...

- Use mini-loop to help finalise dev of Mojaloop v14.1 and v15.0
- Automate deployment of kafka,mongo , redis similar to mysql
- Finalise addition of thirdparty chart deployment (just needs doc)
- Automate deployment of Mojaloop v14 & v15 to kubernetes **v1.25, then 1.26**
- **Start mini-loop support for Mojaloop vNext deployment**
- Investigate / start using mini-loop for enhancing CI/CD testing
  - e.g. incorporating vNext
  - e.g. Incorporating performance sizing – **including pods to nodes association**

There is surprisingly not a massive amount of mini-loop work to do here ！

Next steps
mini-loop
(connect to other systems)

Enable some demonstrations

For instance could mini-loop incorporate say

“Mifos” and create concrete demo's ?

Download install and configure kubernetes (microk8s,k3s)

Download Mojaloop helm repo

Modify local helm charts
Values.yaml, requirements.yaml, template files

deploy MySQL
Dynamically generate new database password

deploy local configured and modified Mojaloop

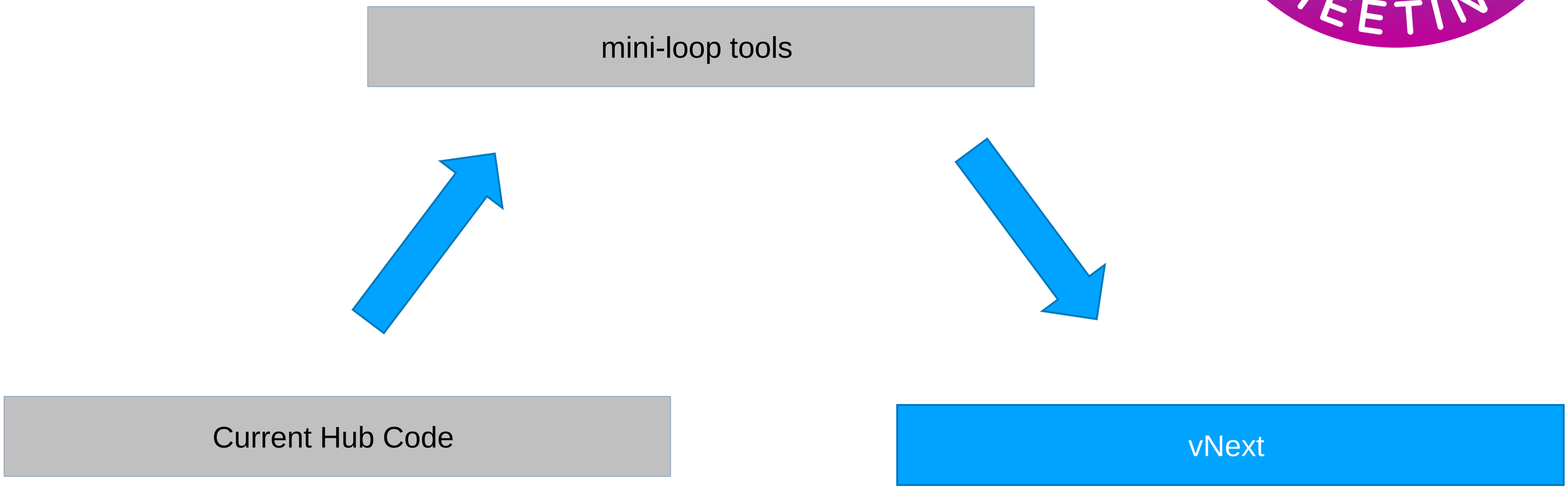
Seems like this should not be too hard or expensive.

Mifos folks already updating integration that they did 2 years ago

Mifos Deployment and integration with data input

Other(s) …

Next steps
mini-loop
(assist transition to vNext)



Next steps
Mini-loop
Something for free

I did have this “pet project” => port mojaloop, deploy to ARM

Why : Enable developers/testers (M1 MAC) productivity

Cost : e.g. AWS graviton instances, various (always) free cloud offerings

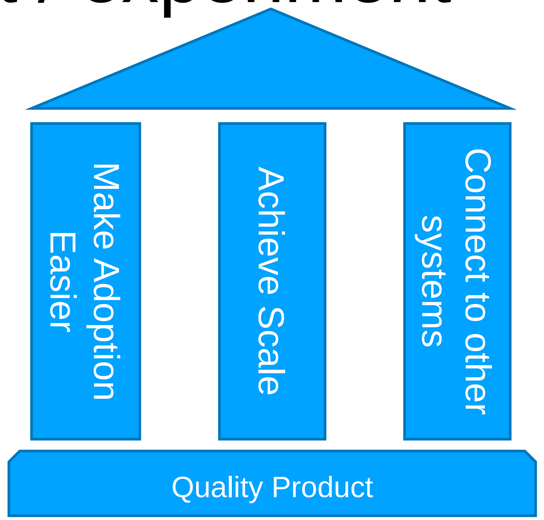
Raspberry PI (offline/remote/low cost clusters – test / dev)

…. However :

vNext obviates the “porting” as we get as part of vNext activities outlined in previous slide

Summary

- Mini-loop is an installer for Mojaloop
- Simple tool and toolkit
- Make it easier and possible to access / learn / test / experiment with Mojaloop in various ways
- **Is facilitating Mojaloop development**
- Really want to help grow Mojaloop community



largest hope for right now

contribute to making abstract conversations ==> concrete !